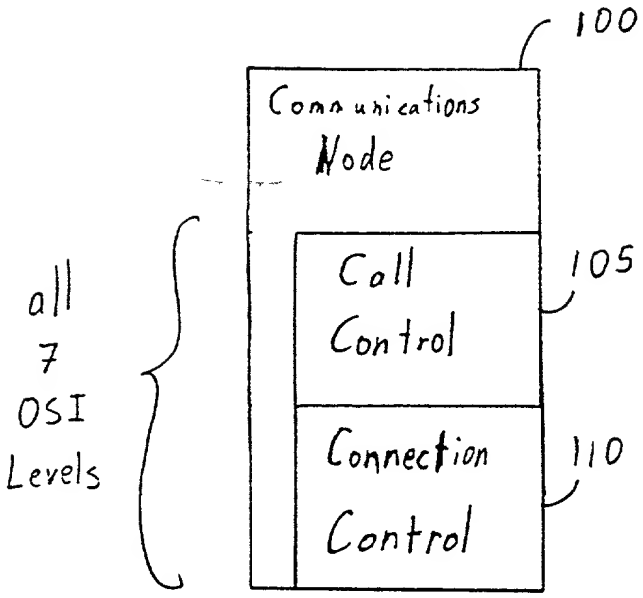
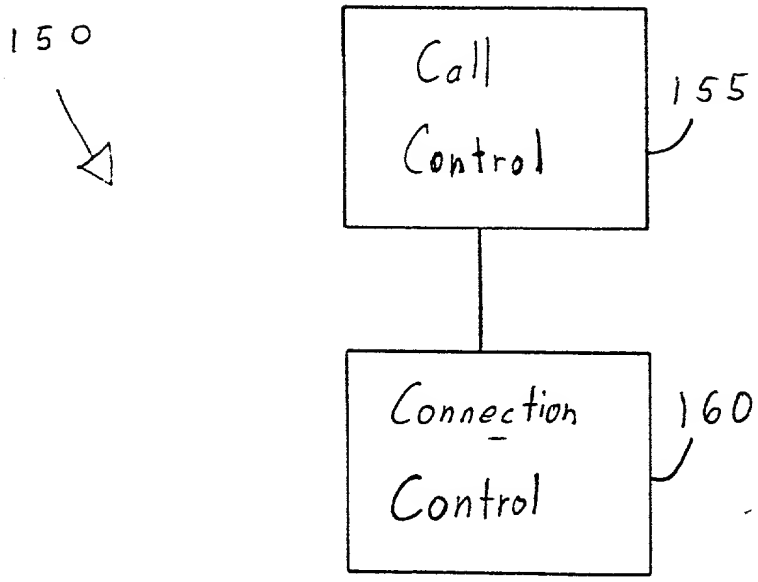


Prior Art

FIG. 1A



Prior Art

FIG. 1B

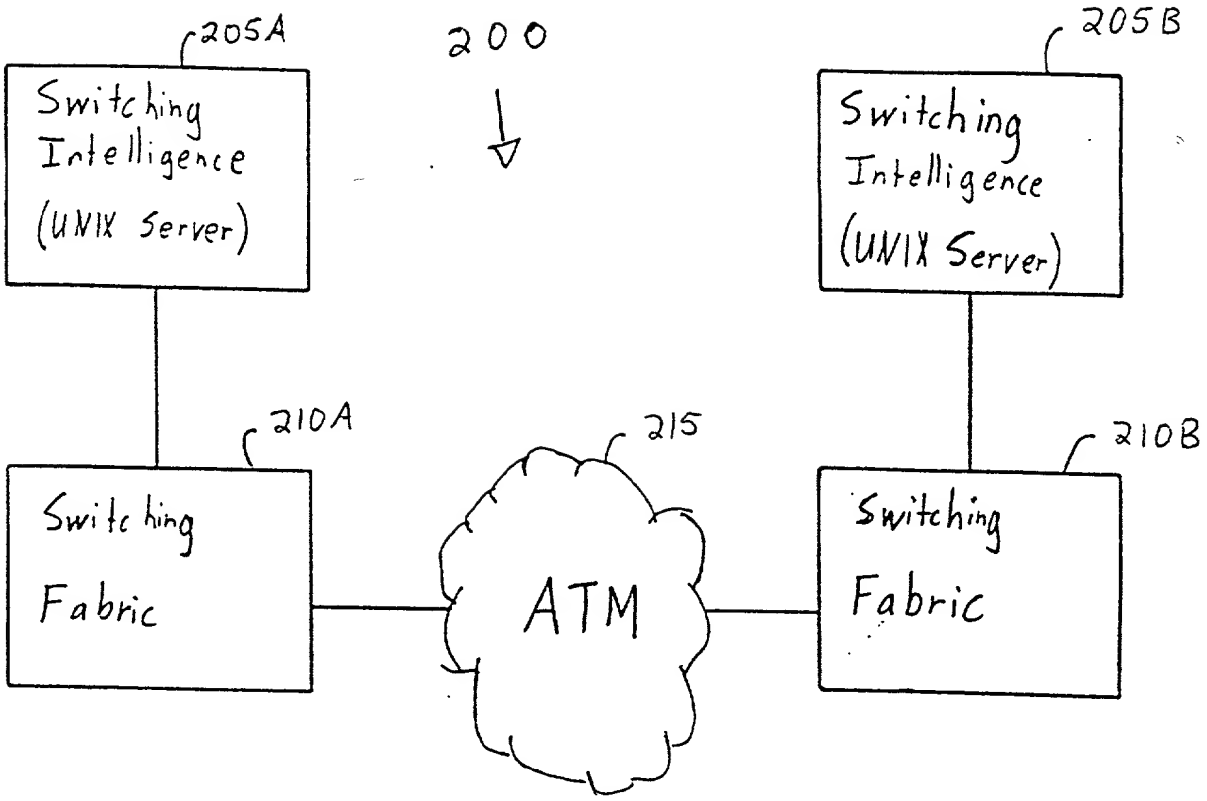
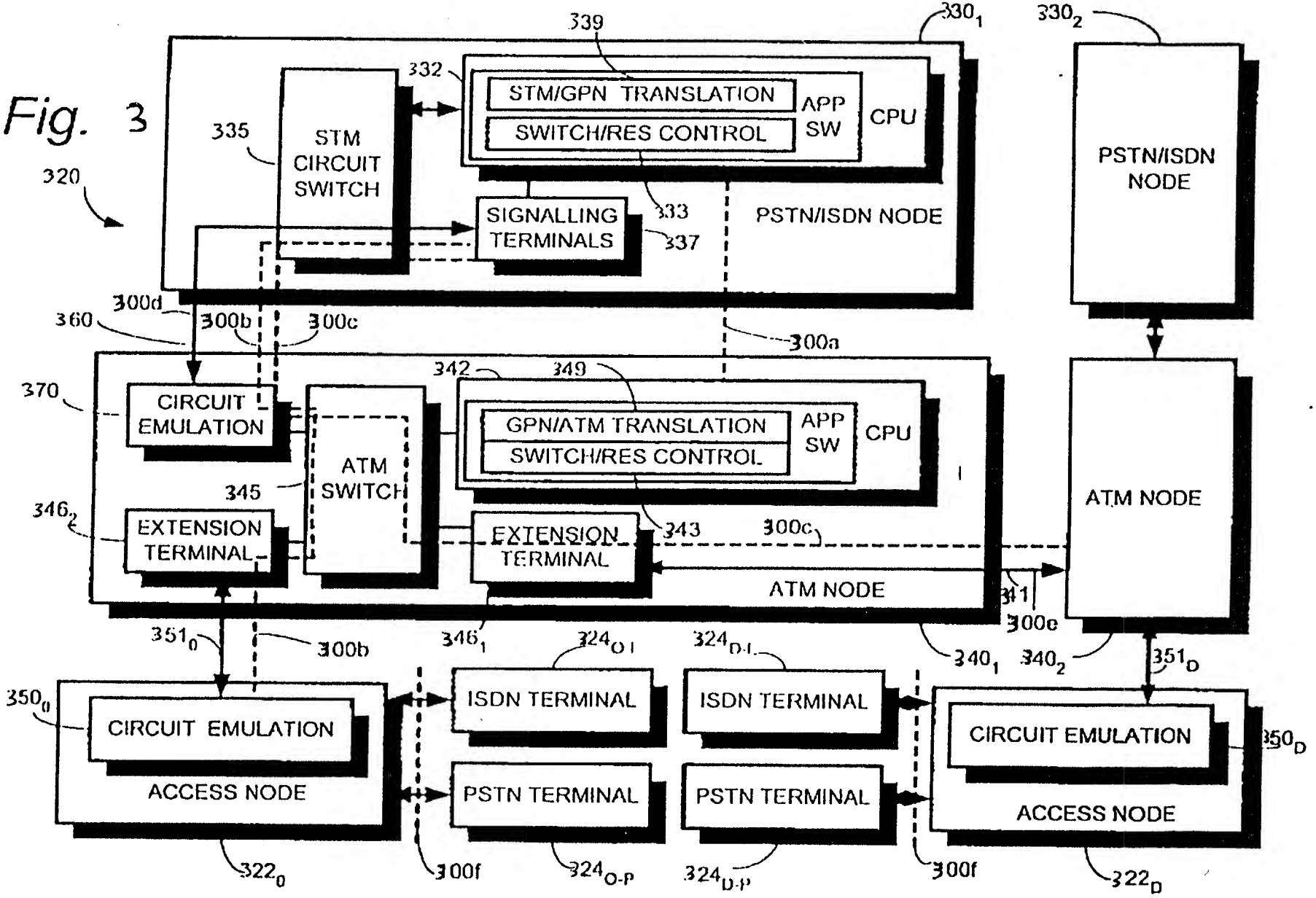


FIG. 2 Prior Art

Fig. 3


339
330_1
330_2
332
STM/GPN TRANSLATION
APP SW
SWITCH/RES CONTROL
CPU
335
STM CIRCUIT SWITCH
320
SIGNALLING TERMINALS
333
337
PSTN/ISDN NODE
PSTN/ISDN NODE
300d
360
300b
300c
300a
342
349
370
CIRCUIT EMULATION
GPN/ATM TRANSLATION
APP SW
SWITCH/RES CONTROL
CPU
ATM SWITCH
345
346_2
EXTENSION TERMINAL
EXTENSION TERMINAL
343
300c
ATM NODE
ATM NODE
311
300e
351_0
300b
346_1
324_{O-1}
324_{D-1}
340_1
340_2
351_D
350_0
CIRCUIT EMULATION
ISDN TERMINAL
ISDN TERMINAL
CIRCUIT EMULATION
350_D
ACCESS NODE
PSTN TERMINAL
PSTN TERMINAL
ACCESS NODE
322_0
300f
324_{O-P}
324_{D-P}
300f
322_D

EP 0 717 580 A2

Fig. 3A

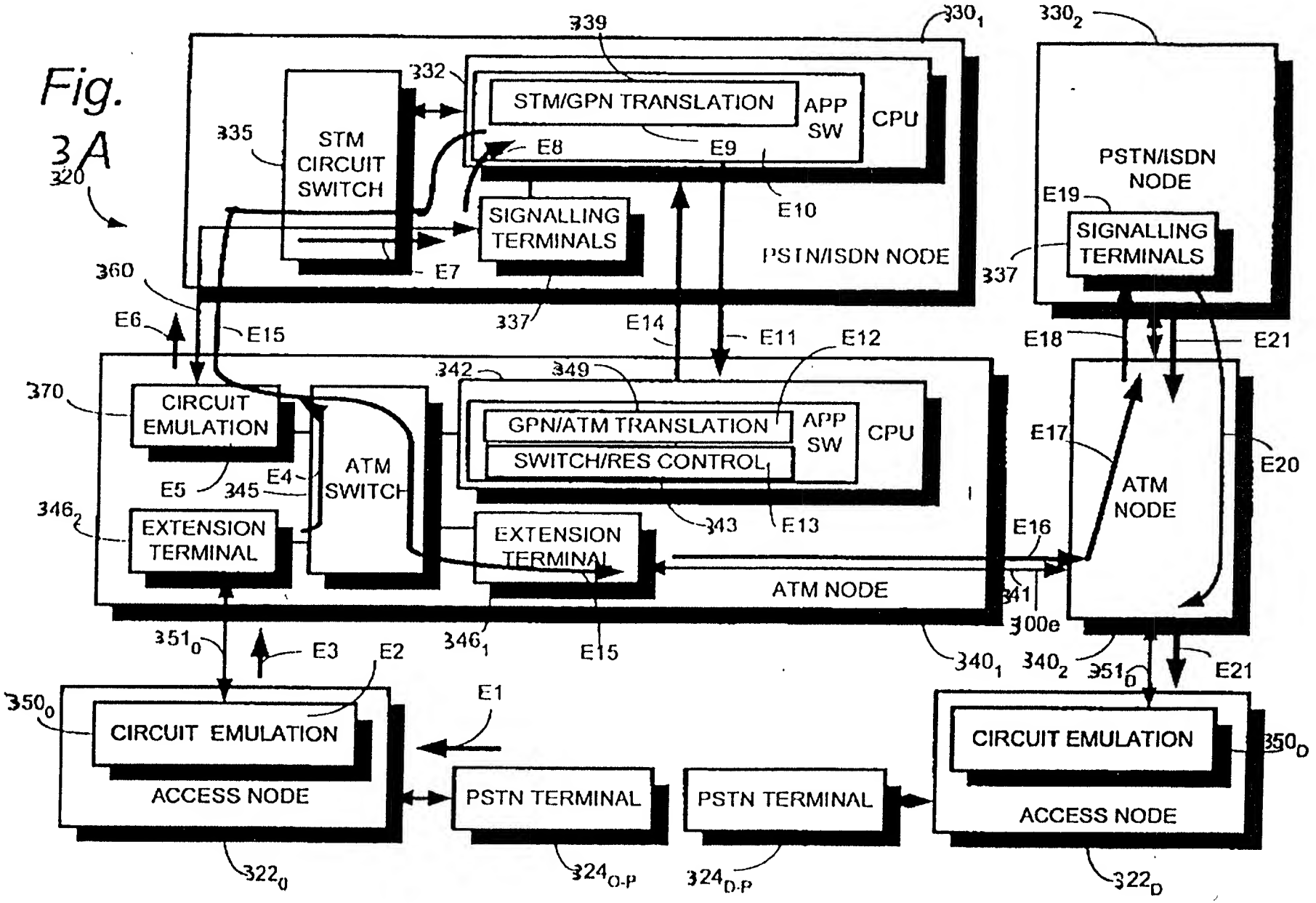


Fig. 3B

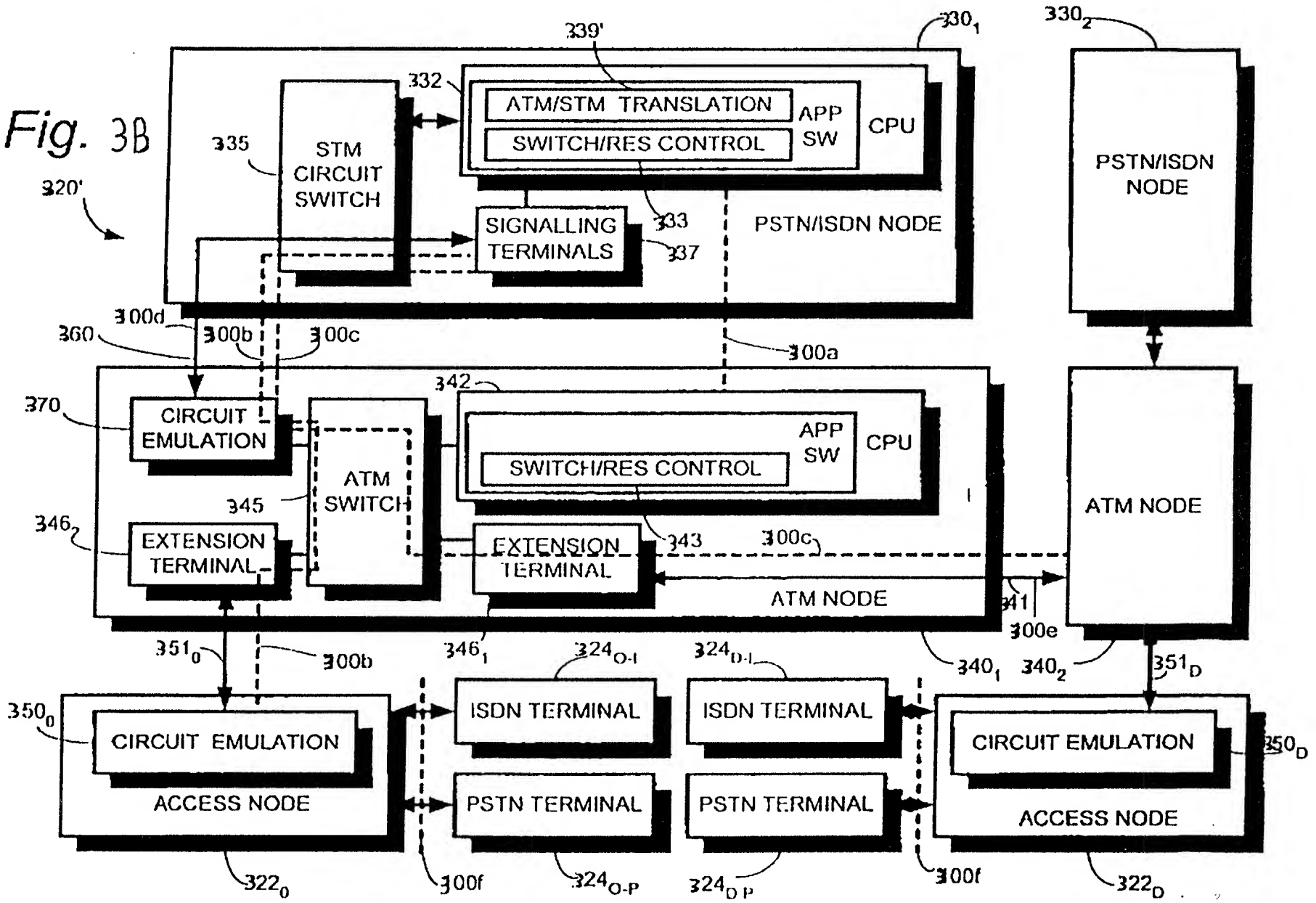
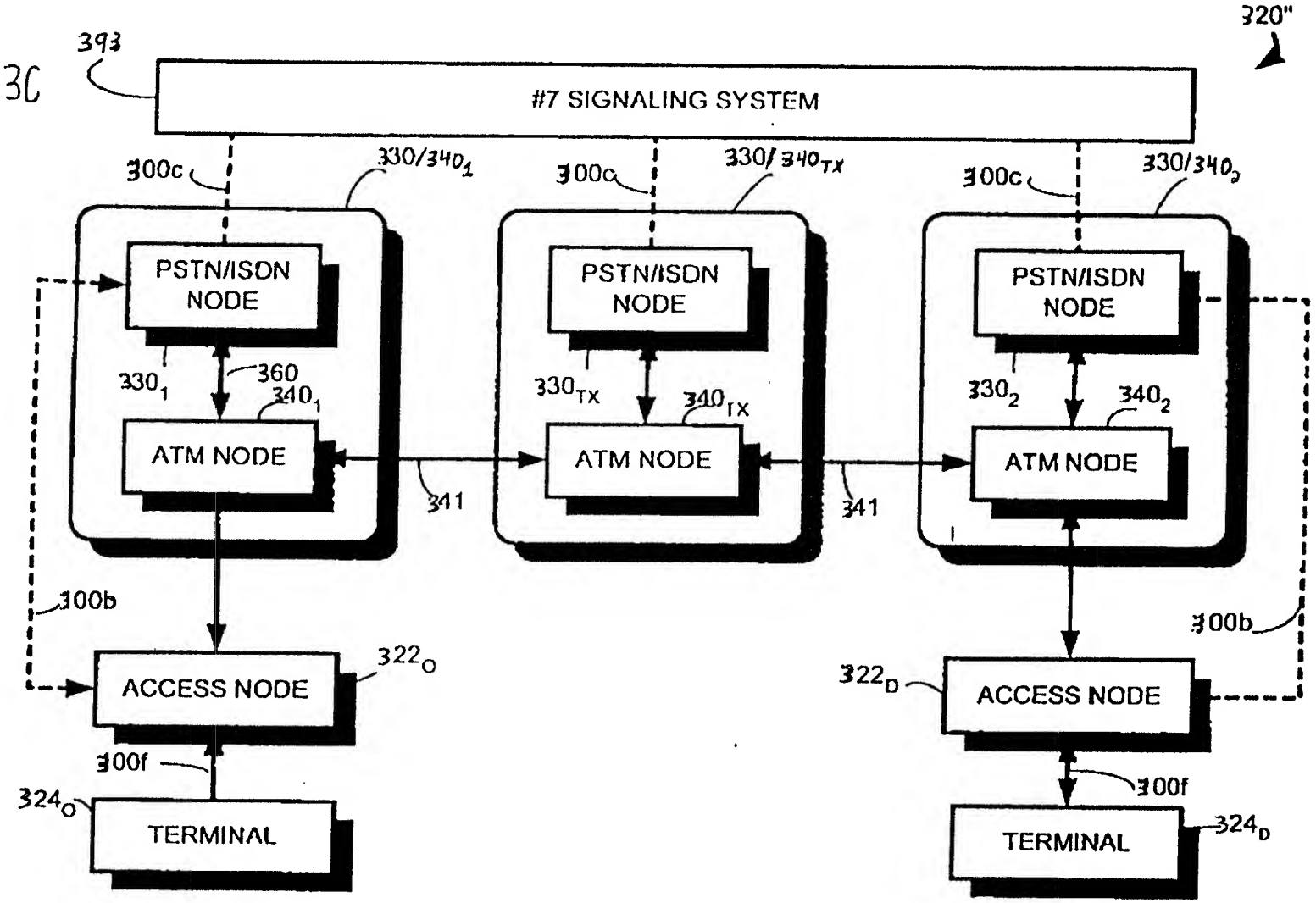

320'
339'
330_1
330_2
332
335
STM CIRCUIT SWITCH
ATM/STM TRANSLATION
SWITCH/RES CONTROL
APP SW
CPU
SIGNALLING TERMINALS
333
337
PSTN/ISDN NODE
PSTN/ISDN NODE
300d
300b
300c
300a
360
370
CIRCUIT EMULATION
342
ATM SWITCH
345
346
EXTENSION TERMINAL
343
300c
ATM NODE
ATM NODE
341
300e
351_0
300b
346_1
324_{O-I}
324_{D-I}
340_1
340_2
351_D
350_0
CIRCUIT EMULATION
ACCESS NODE
ISDN TERMINAL
ISDN TERMINAL
PSTN TERMINAL
PSTN TERMINAL
CIRCUIT EMULATION
ACCESS NODE
350_D
322_0
300f
324_{O-P}
324_{D-P}
300f
322_D

Fig. 3C


320"
393
#7 SIGNALING SYSTEM
300c
330/340$_1$
330/340$_{TX}$
330/340$_2$
PSTN/ISDN NODE
PSTN/ISDN NODE
PSTN/ISDN NODE
330$_1$
360
340$_1$
330$_{TX}$
340$_{TX}$
330$_2$
340$_2$
ATM NODE
ATM NODE
ATM NODE
341
341
300b
300b
322$_O$
322$_D$
ACCESS NODE
ACCESS NODE
300f
300f
324$_O$
324$_D$
TERMINAL
TERMINAL

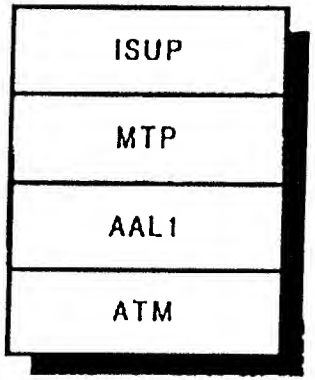


Fig. 3D

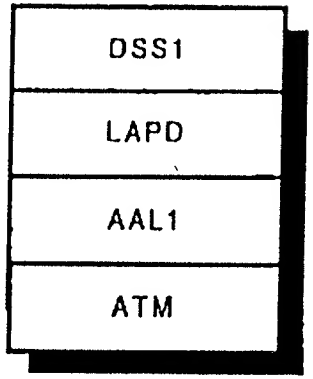


Fig. 3E

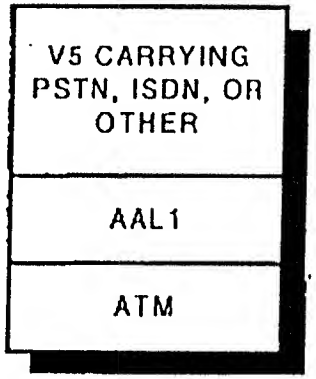


Fig. 3F

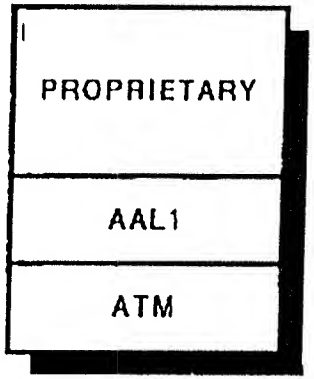


Fig. 3G

Fig. 3H

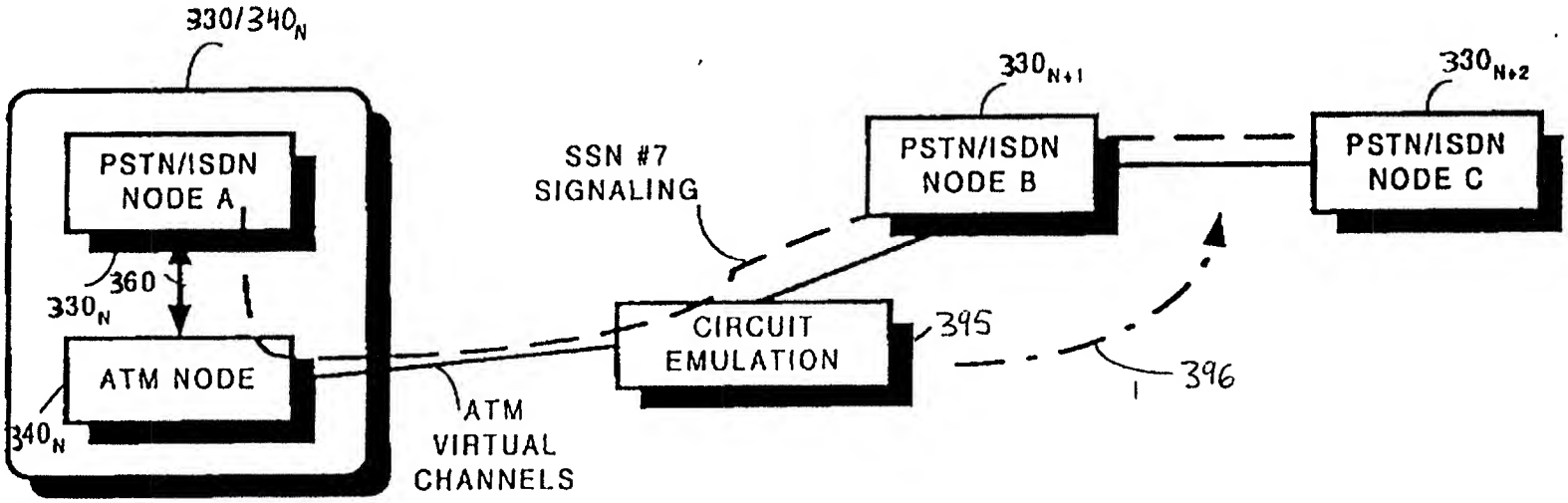
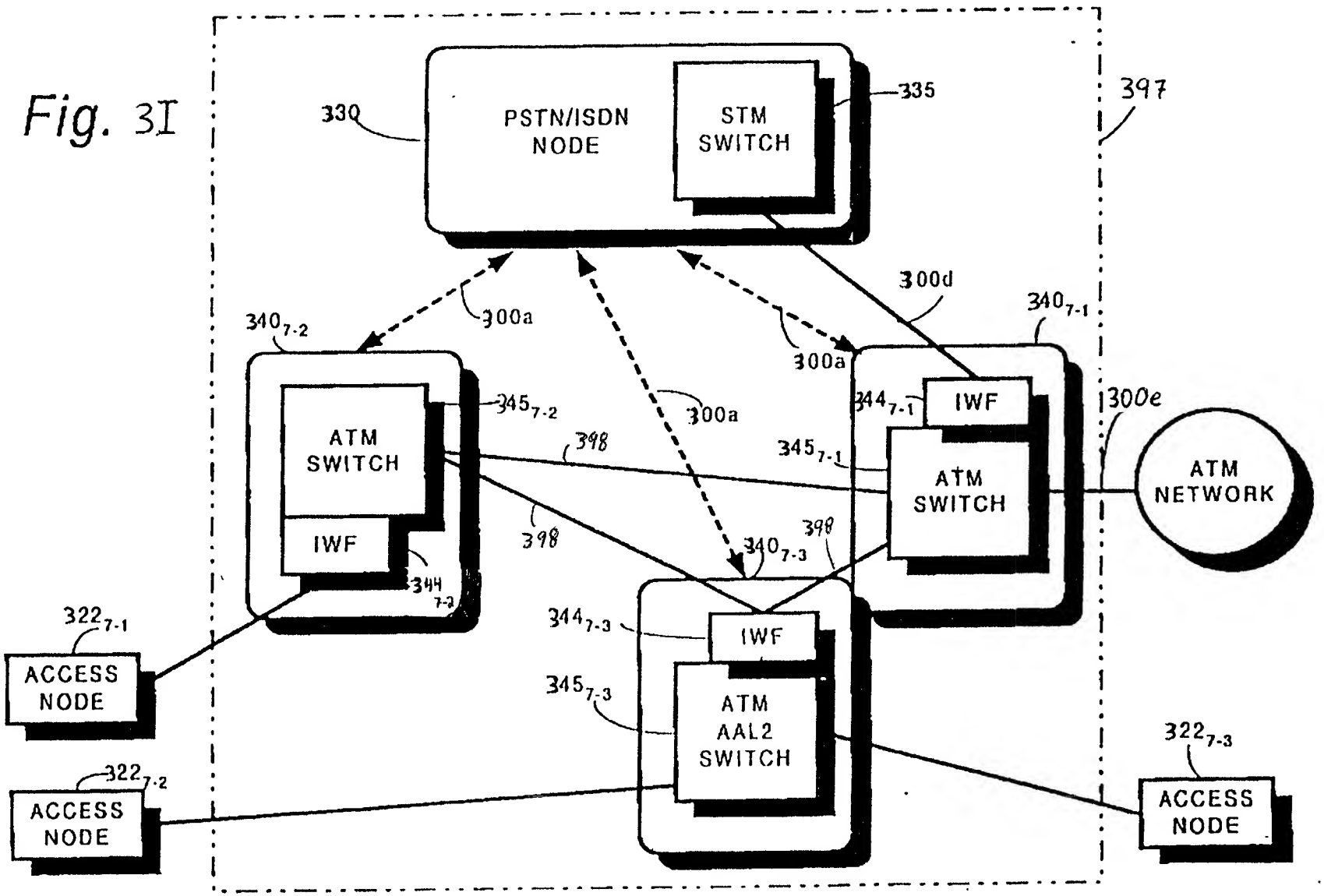

330/340N
PSTN/ISDN NODE A
360
330N
ATM NODE
340N
ATM VIRTUAL CHANNELS
SSN #7 SIGNALING
CIRCUIT EMULATION
395
396
330N+1
PSTN/ISDN NODE B
330N+2
PSTN/ISDN NODE C

Fig. 3I


330
PSTN/ISDN NODE
STM SWITCH
335
397
300d
300a
300a
300a
340_{7-2}
340_{7-1}
345_{7-2}
344_{7-1}
IWF
ATM SWITCH
398
345_{7-1}
300e
ATM NETWORK
ATM SWITCH
IWF
398
398
340_{7-3}
344_{7-2}
322_{7-1}
344_{7-3}
IWF
ACCESS NODE
345_{7-3}
ATM AAL2 SWITCH
322_{7-3}
322_{7-2}
ACCESS NODE
ACCESS NODE

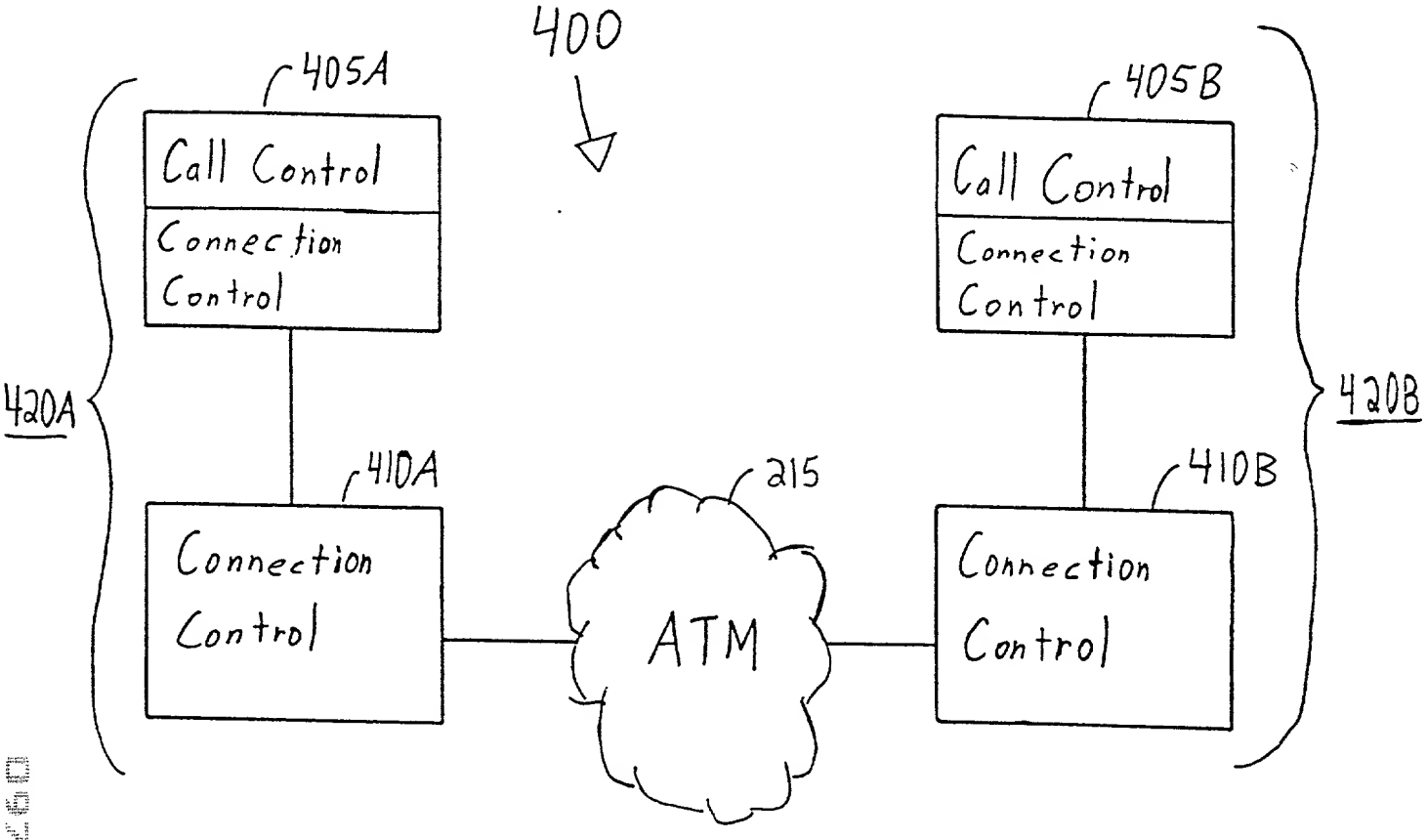

400
405A
Call Control
Connection Control
405B
Call Control
Connection Control
420A
420B
410A
Connection Control
215
ATM
410B
Connection Control

FIG. 4

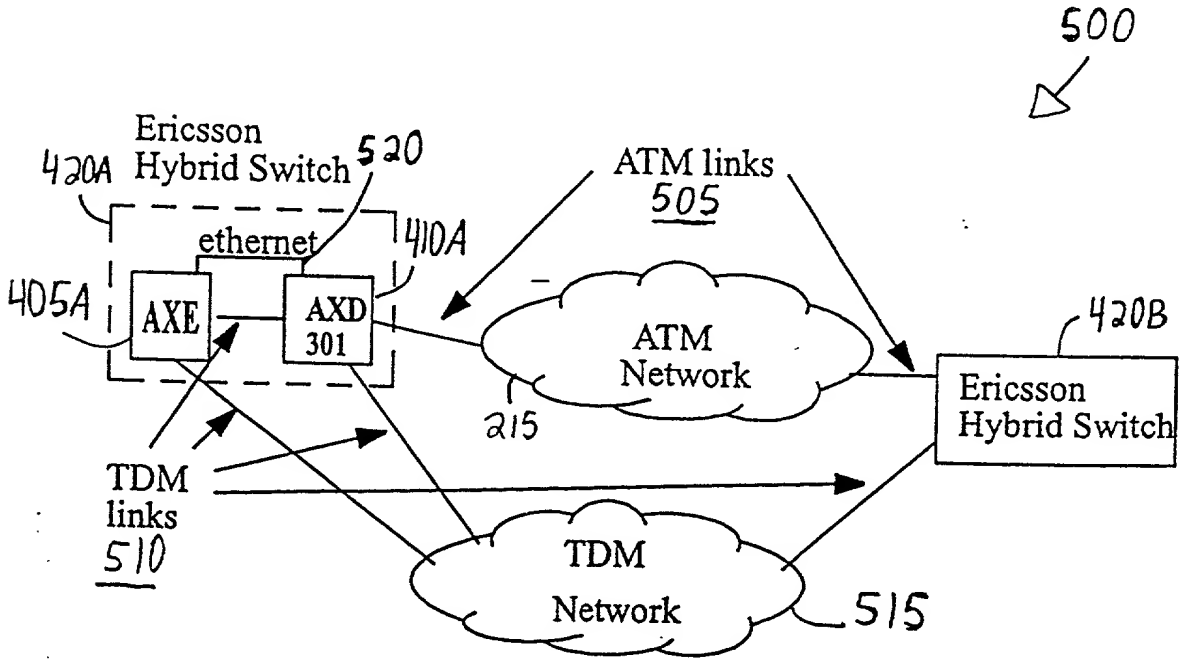

500
Ericsson Hybrid Switch
420A
520
ATM links
505
ethernet
410A
405A
AXE
AXD 301
ATM Network
420B
Ericsson Hybrid Switch
215
TDM links
510
TDM Network
515

FIG. 5

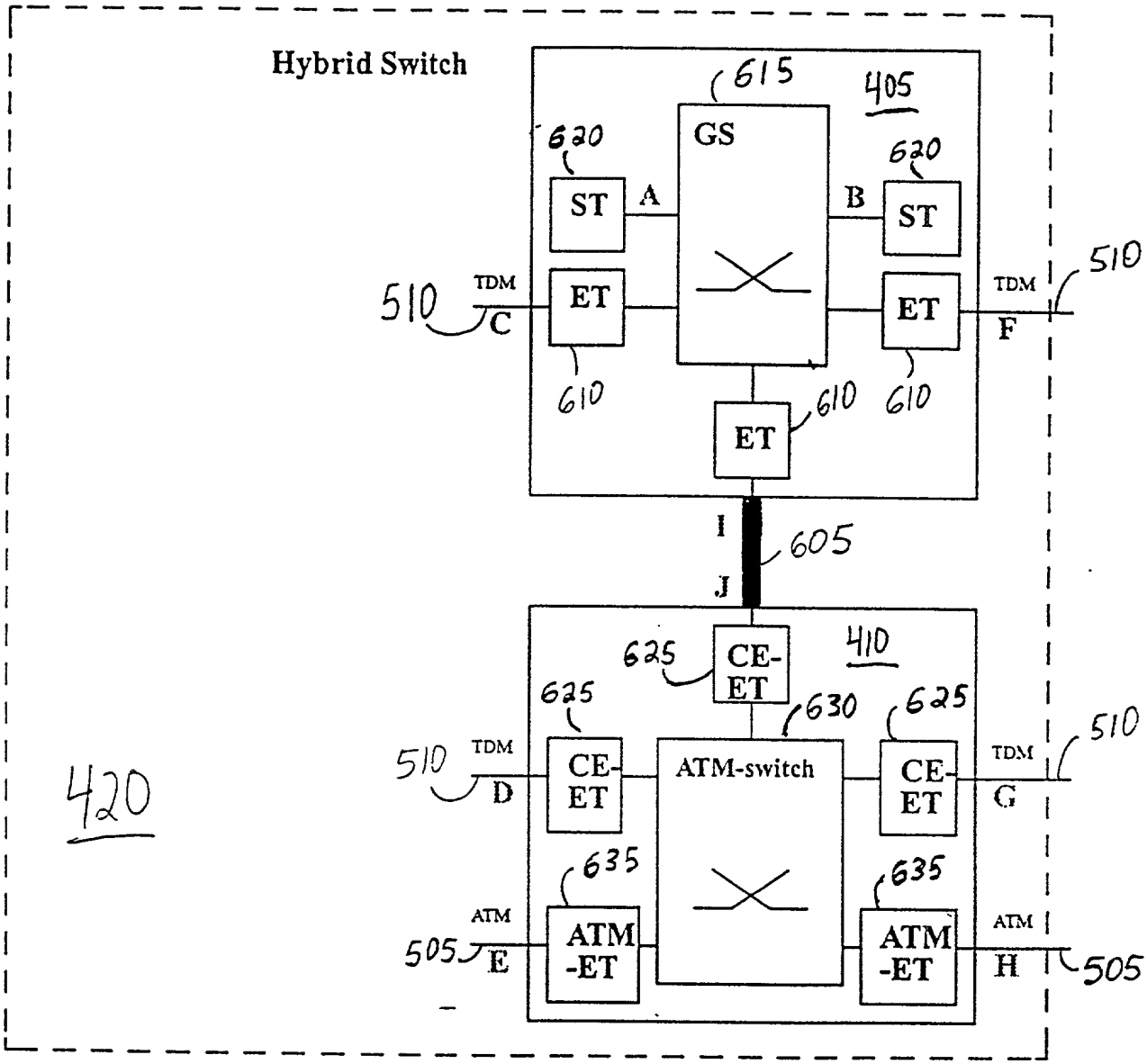

Hybrid Switch
615
405
GS
620
ST
A
B
620
ST
510
TDM
C
ET
ET
TDM
F
510
610
610
610
ET
I
605
J
410
625
CE-ET
625
630
625
510
TDM
D
CE-ET
ATM-switch
CE-ET
TDM
G
510
420
635
635
ATM
505
E
ATM-ET
ATM-ET
ATM
H
505

FIG. 6

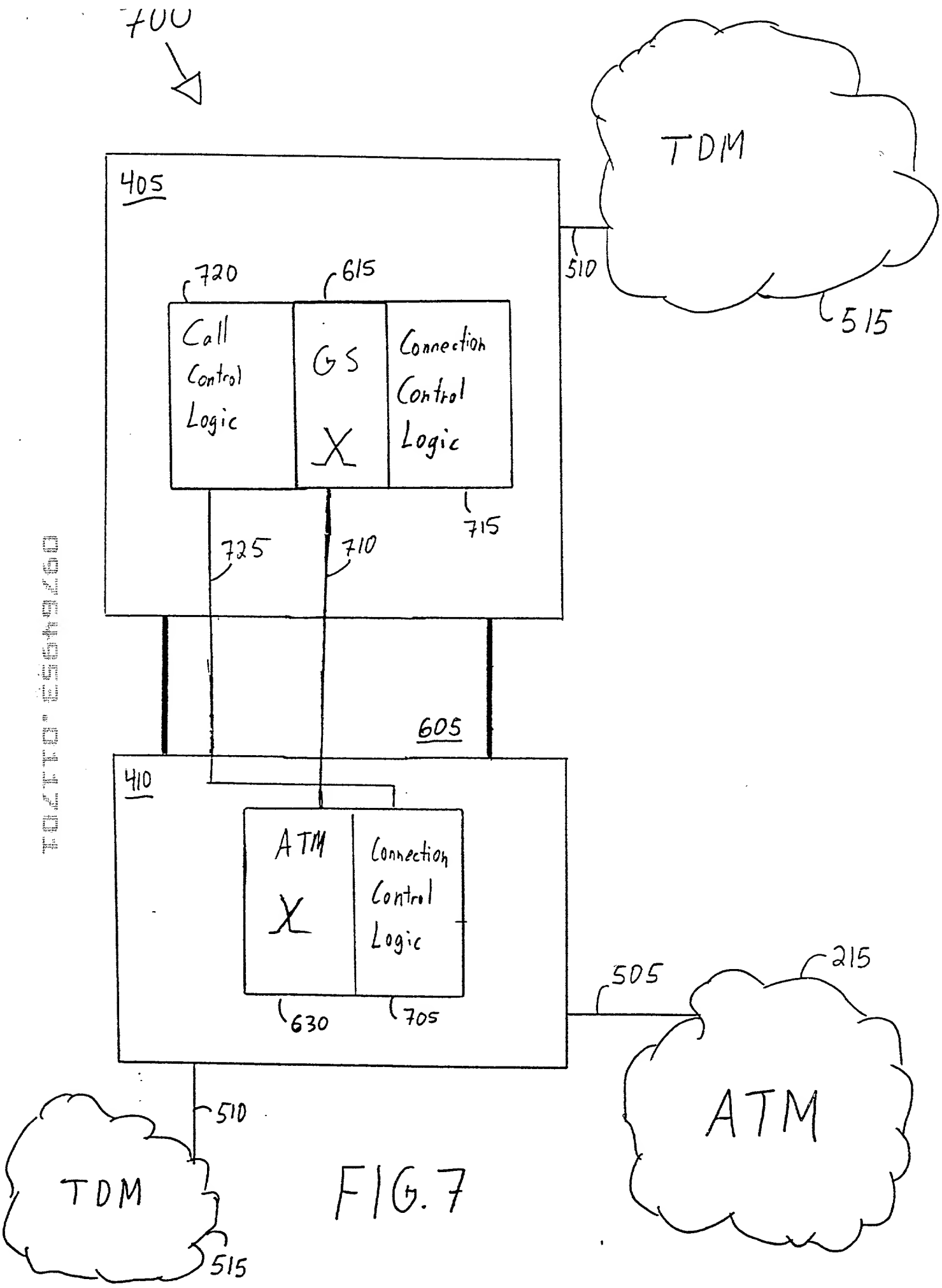

700
TDM
405
720
615
Call Control Logic
GS
X
Connection Control Logic
715
510
515
725
710
605
410
ATM
X
Connection Control Logic
630
705
505
215
ATM
510
TDM
515

FIG. 7

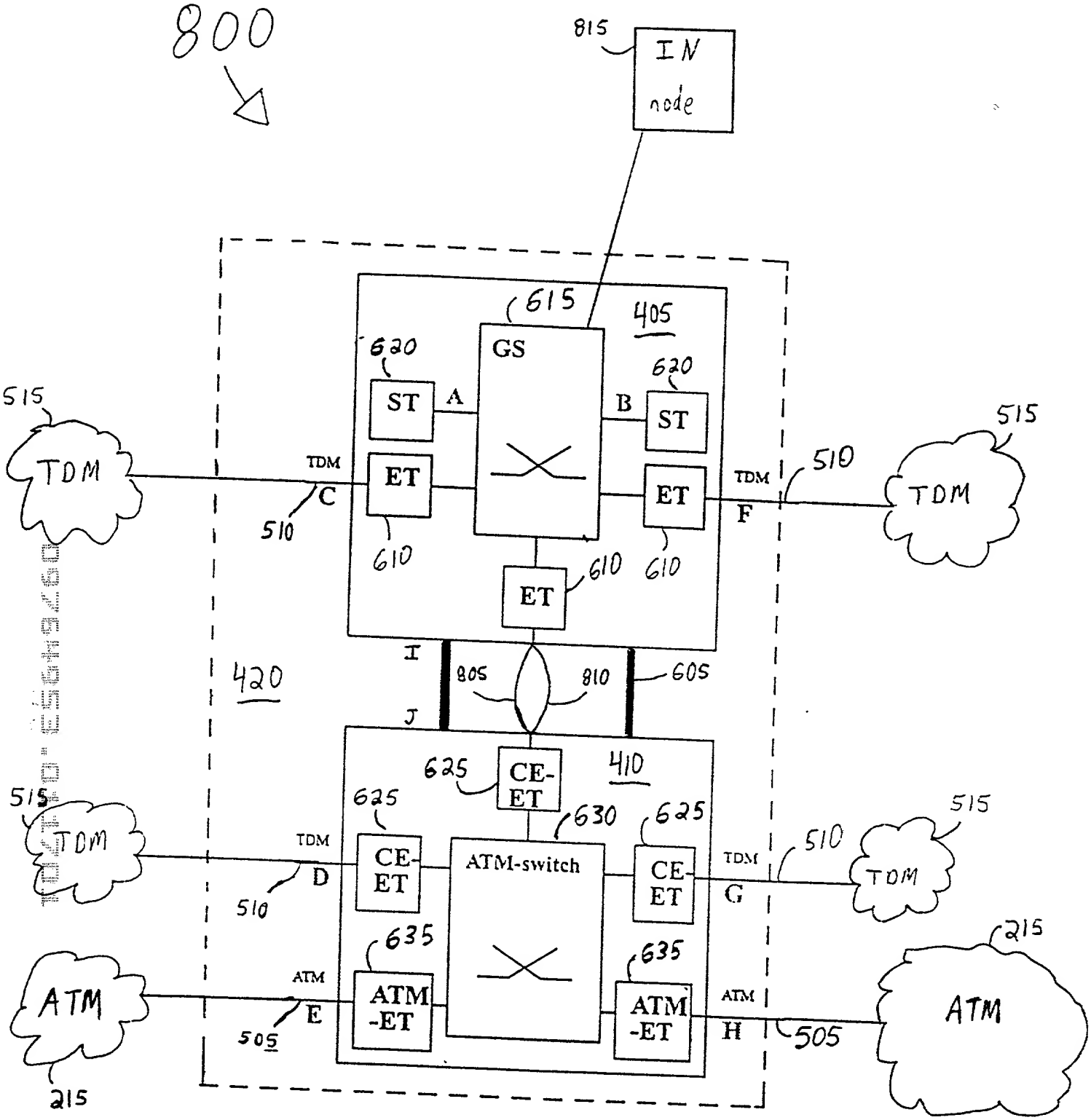

800
815
IN node
615
405
620
GS
620
515
ST
A
B
ST
515
TDM
TDM
ET
ET
TDM
510
510
C
F
TDM
610
610
610
ET
I
420
805
810
605
J
625
CE-ET
410
515
625
630
625
515
TDM
TDM
CE-ET
ATM-switch
CE-ET
TDM
510
510
D
G
TDM
635
635
215
ATM
ATM
ATM-ET
ATM-ET
ATM
ATM
505
E
H
505
215

FIG. 8

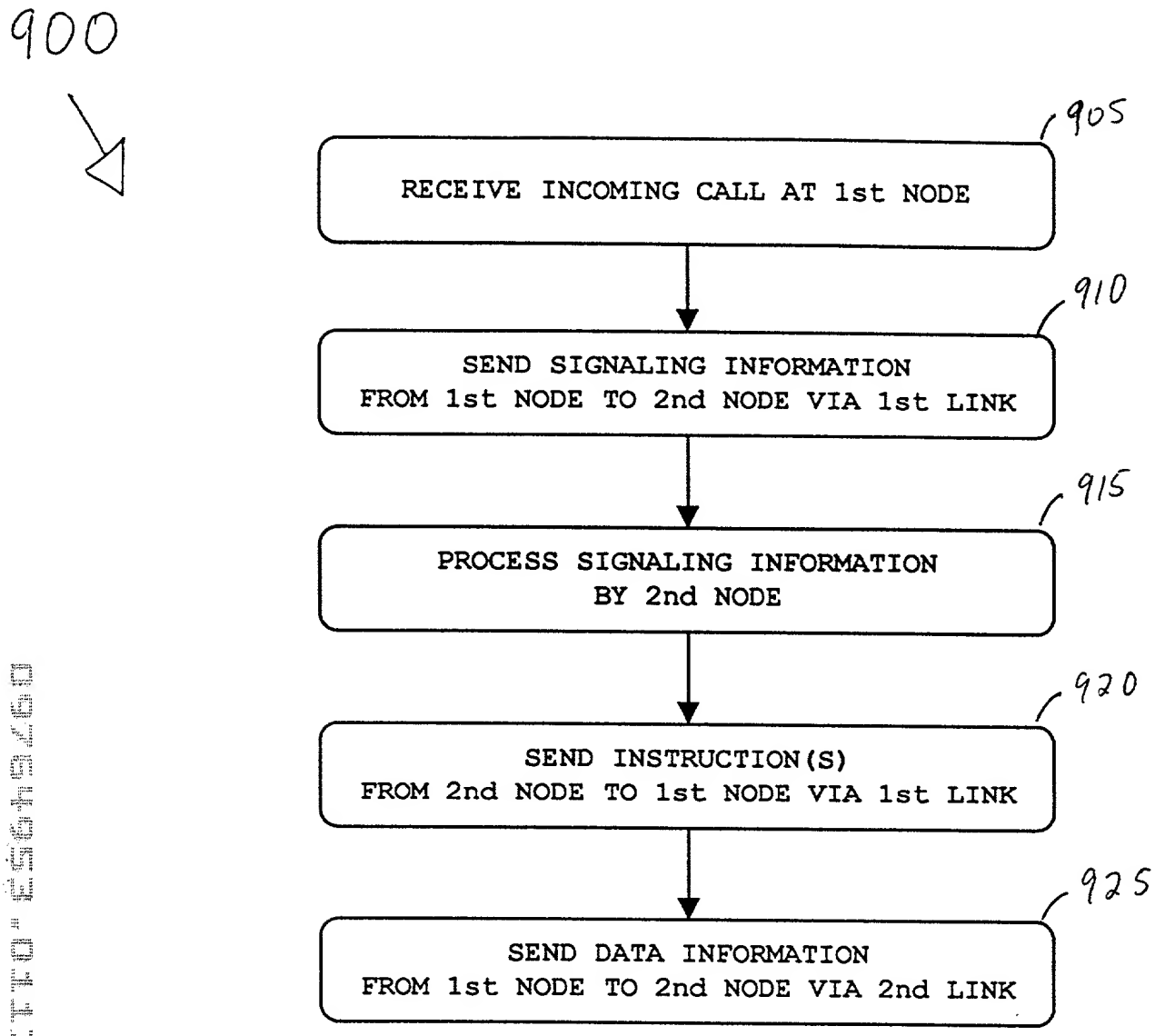

900
905
RECEIVE INCOMING CALL AT 1st NODE
910
SEND SIGNALING INFORMATION
FROM 1st NODE TO 2nd NODE VIA 1st LINK
915
PROCESS SIGNALING INFORMATION
BY 2nd NODE
920
SEND INSTRUCTION(S)
FROM 2nd NODE TO 1st NODE VIA 1st LINK
925
SEND DATA INFORMATION
FROM 1st NODE TO 2nd NODE VIA 2nd LINK

FIG. 9

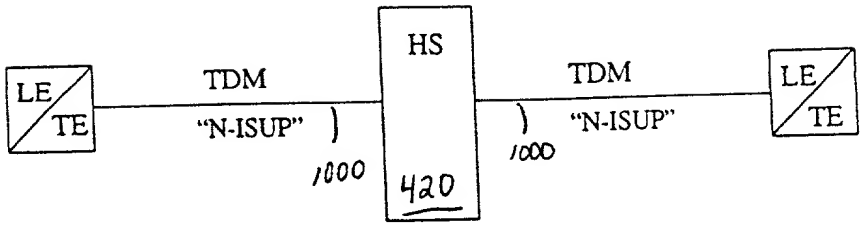


FIG. 10A

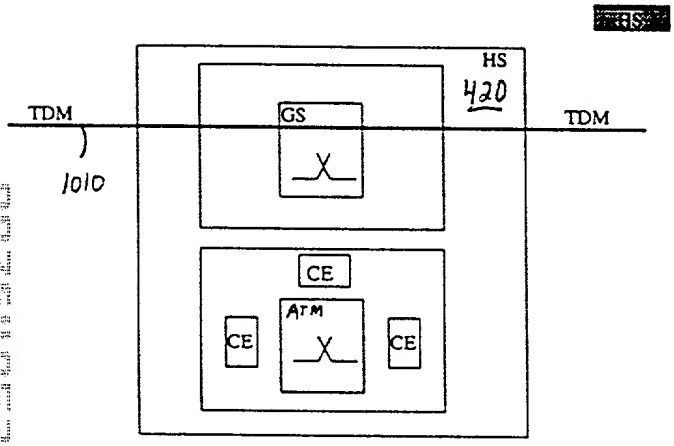


FIG 10B

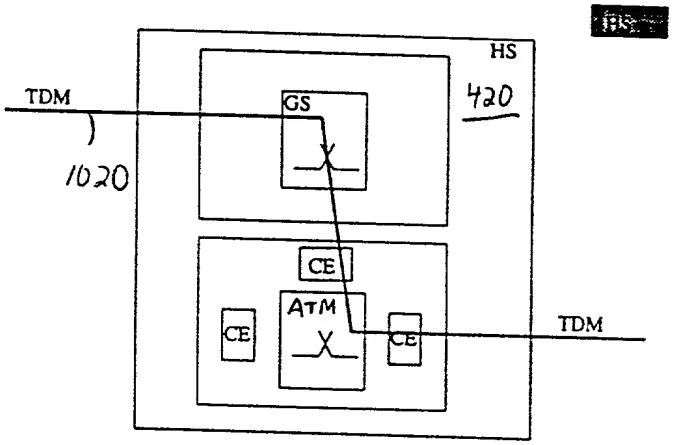


FIG. 10C

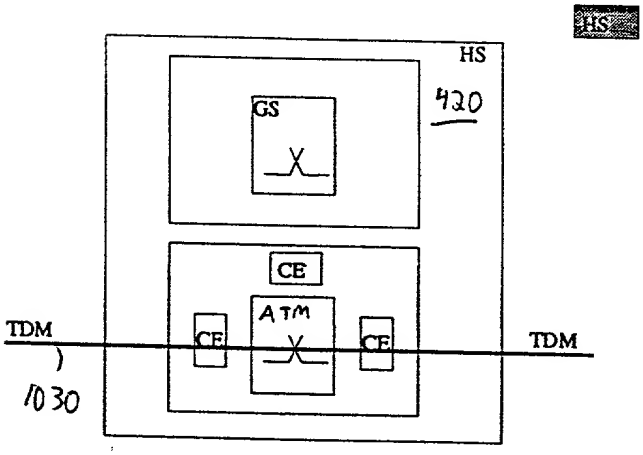


FIG. 10D

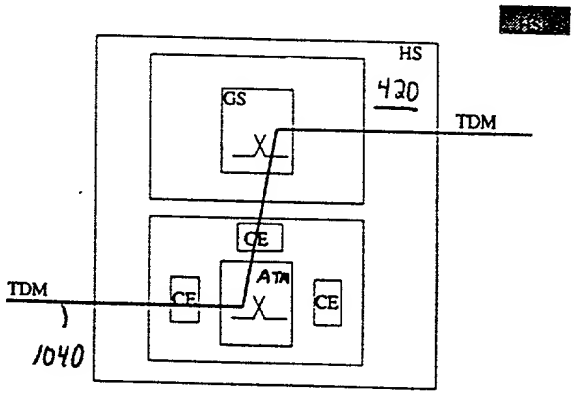


FIG. 10E

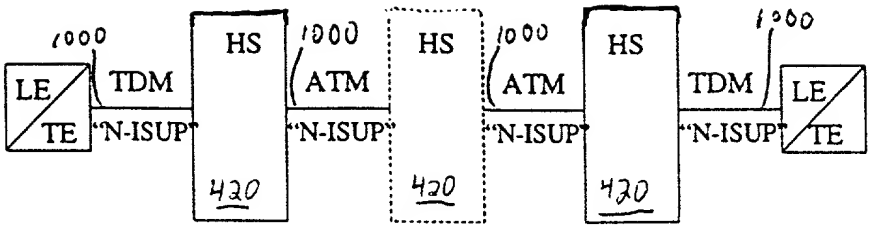


FIG. 10F

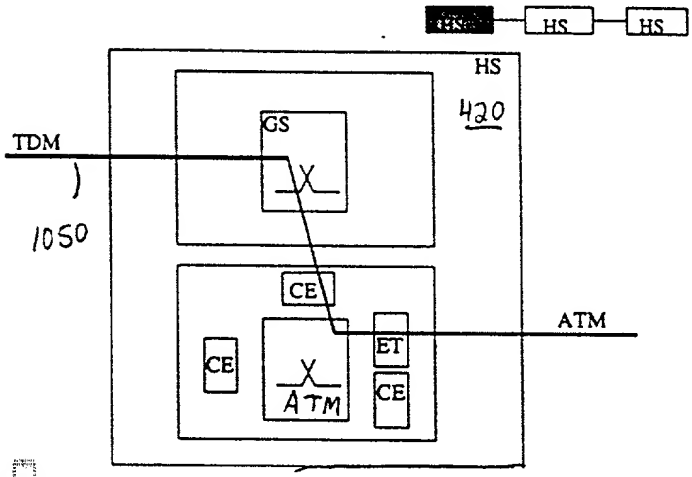


FIG. 10G

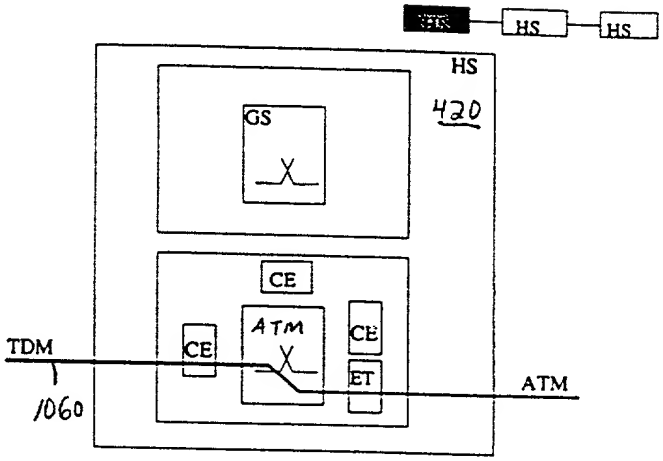


FIG. 10H

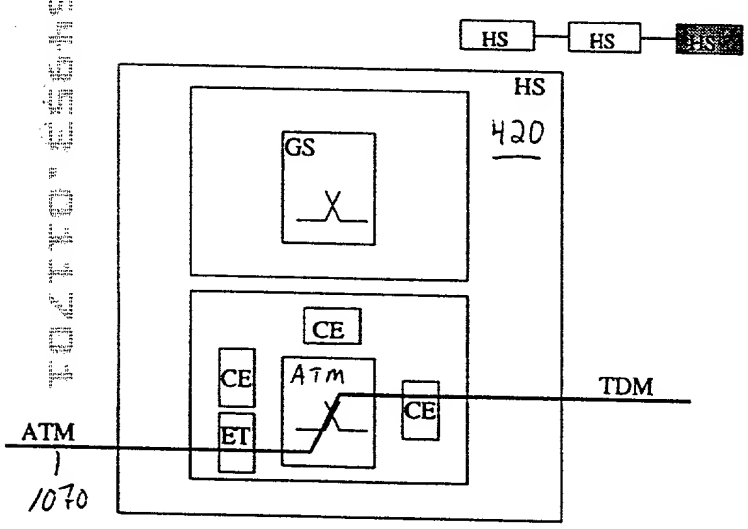


FIG. 10I

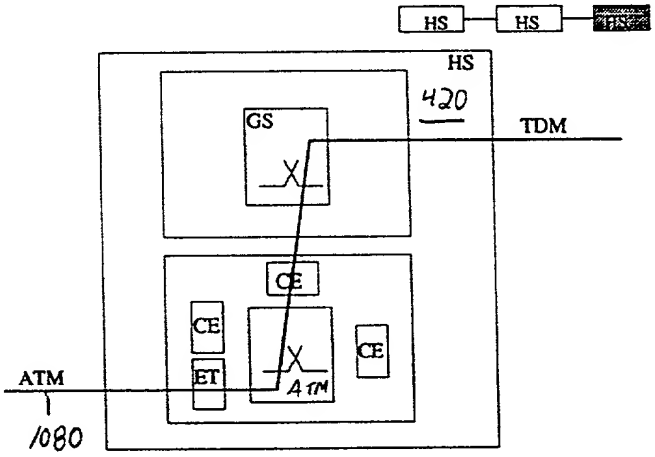


FIG. 10J

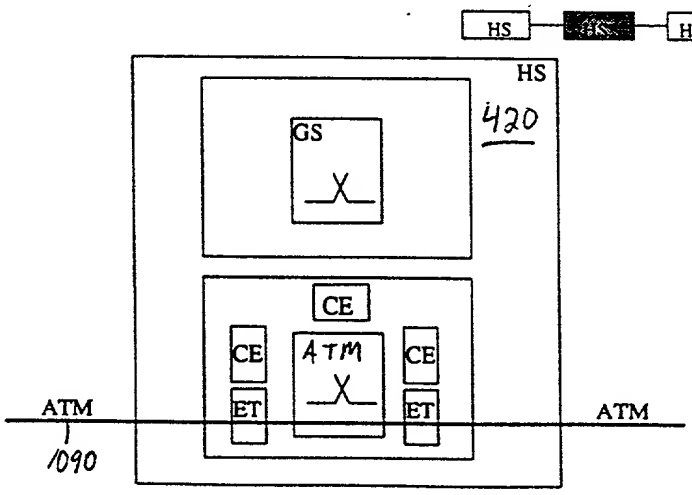


FIG. 10K

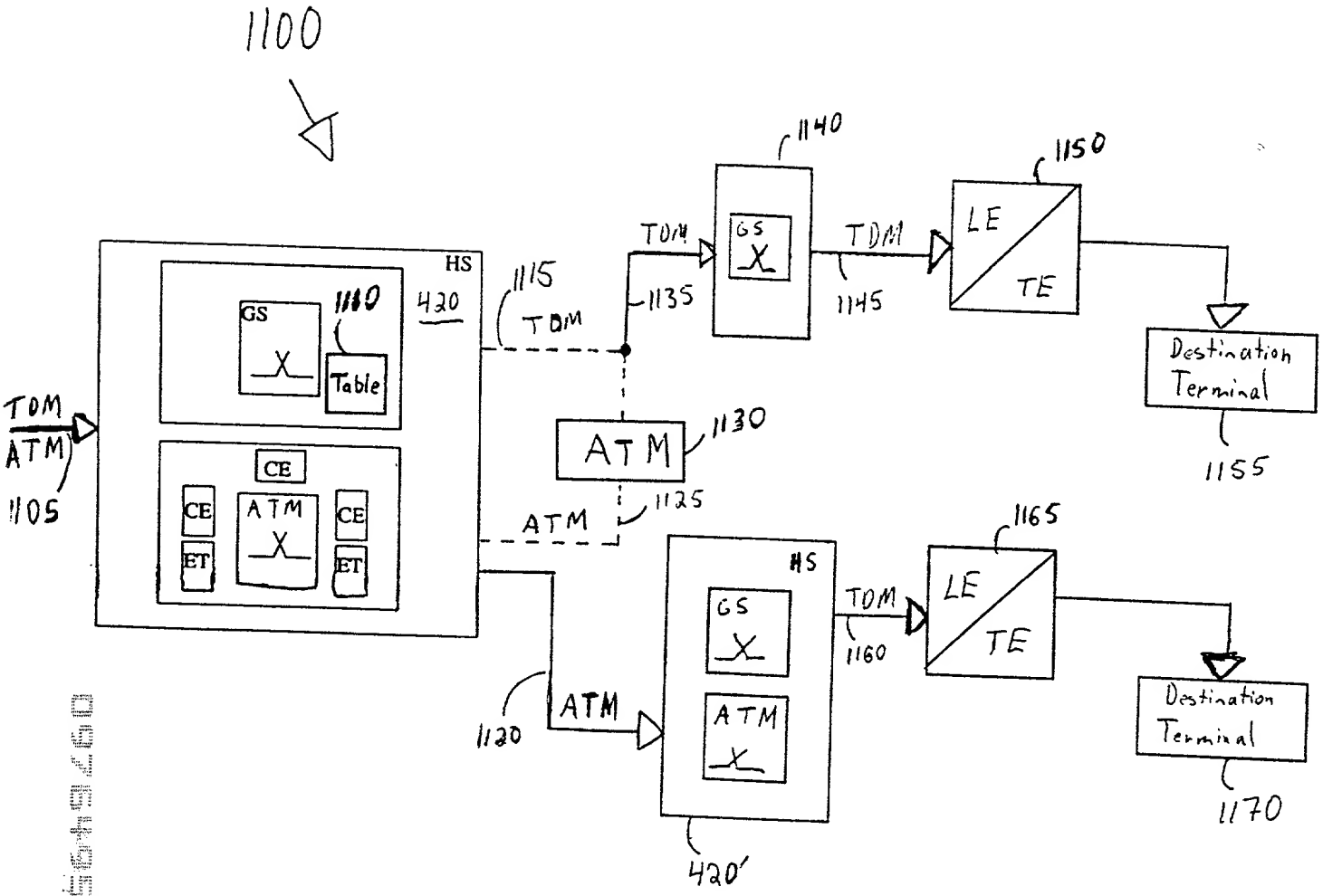

1100
1140
1150
TDM
GS
X
TDM
LE
TE
HS
1115
TDM
1135
1145
420
1110
GS
X
Table
Destination
Terminal
TDM
ATM
1105
1130
ATM
1155
CE
CE
ATM
CE
ET
X
ET
1125
ATM
1165
HS
GS
X
TDM
LE
TE
1160
1120
ATM
ATM
X
Destination
Terminal
1170
420'

FIG. 11

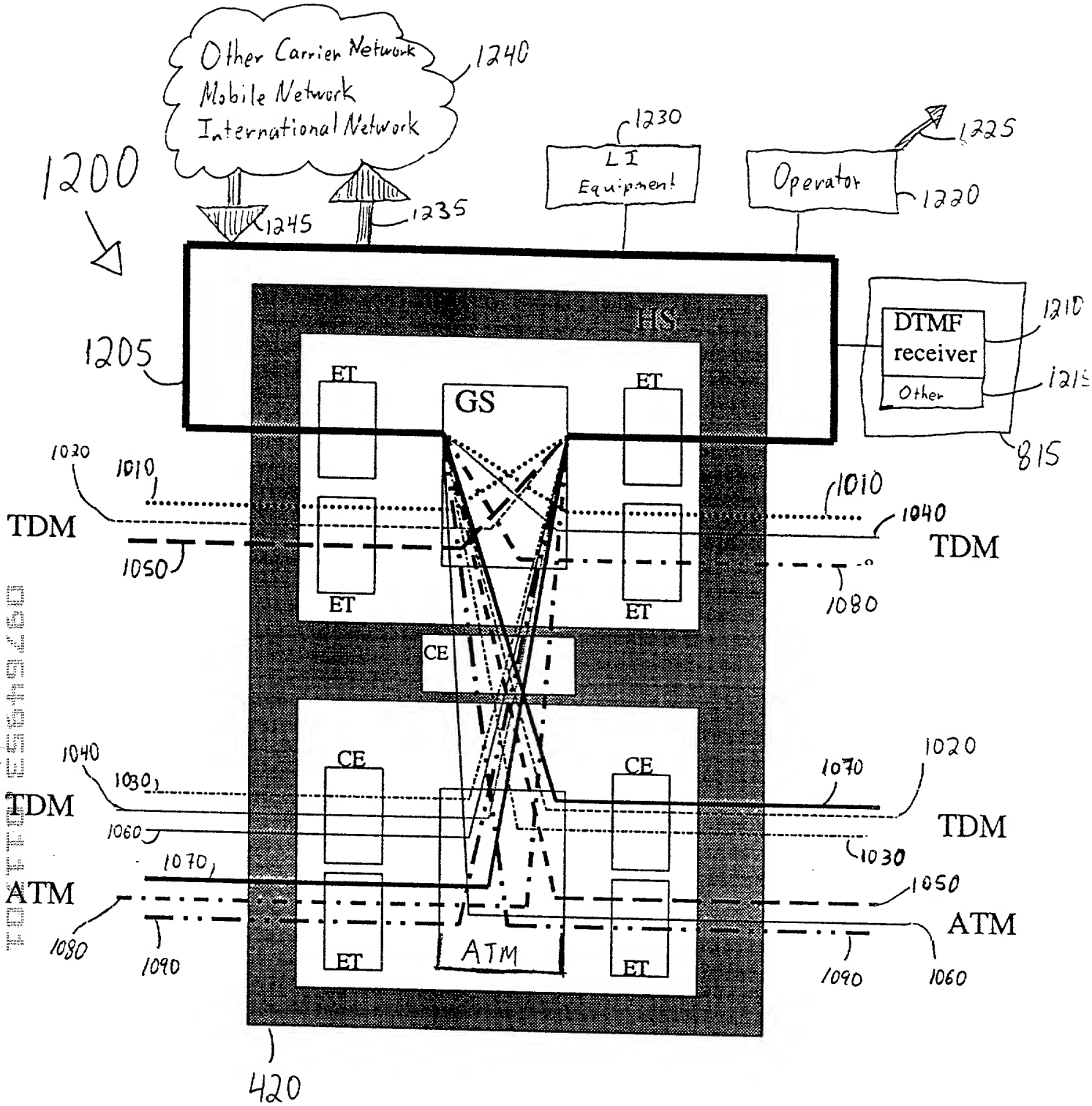

Other Carrier Network
Mobile Network
International Network
1240
1200
1230
LI Equipment
1225
Operator
1220
1245
1235
1205
IMS
DTMF receiver
1210
Other
1215
815
ET
GS
ET
ET
ET
CE
CE
CE
ET
ATM
ET
1020
1010
1040
TDM
1050
1080
1030
1060
1070
ATM
1090
420

FIG. 12

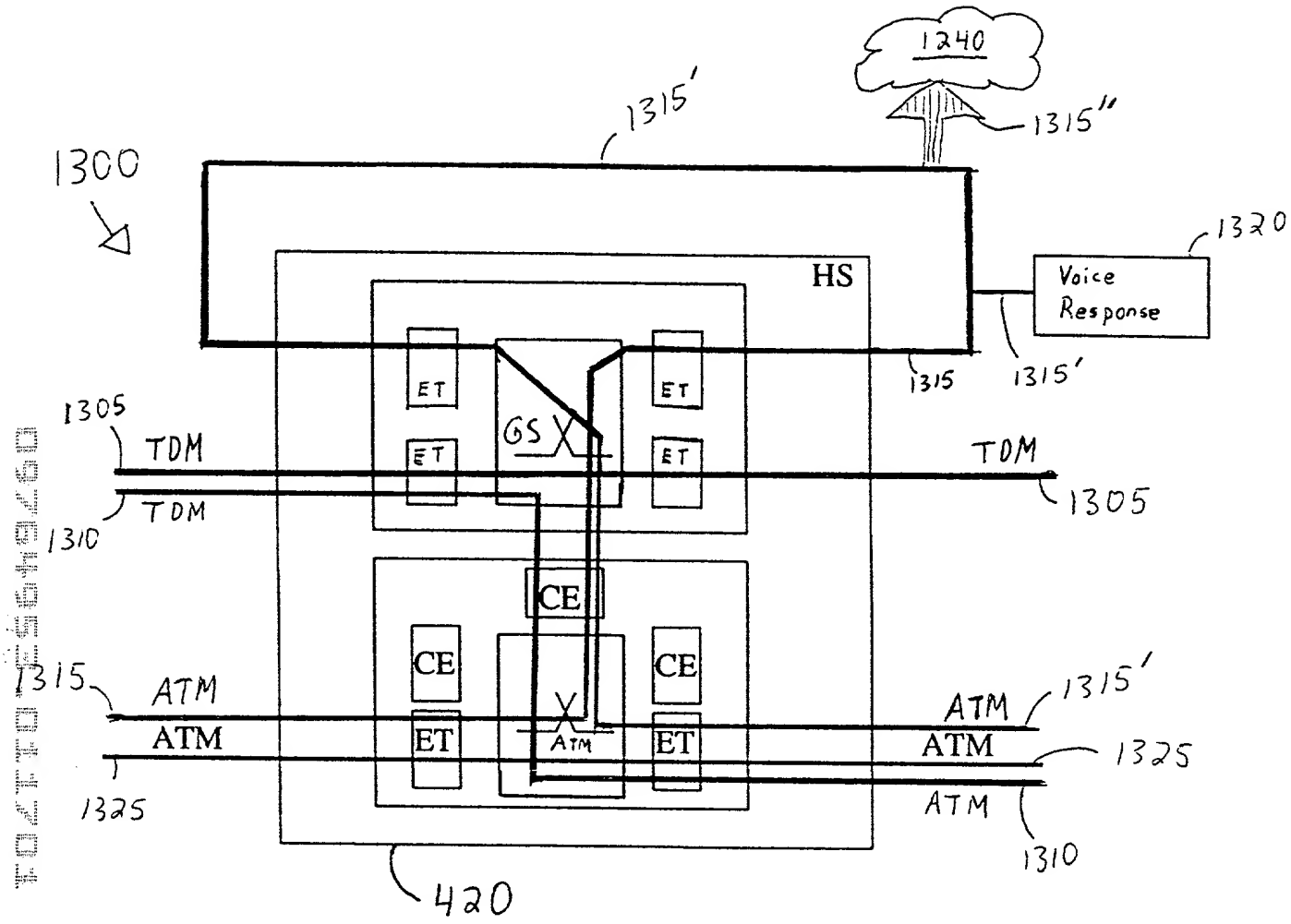

1240
1315'
1315''
1300
1320
HS
Voice
Response
ET
ET
ET
ET
GS
1315
1315'
1305
TDM
TDM
TDM
1310
1305
CE
CE
CE
1315
ATM
ATM
ATM
ATM
ET
ATM
ET
1315'
1325
1325
ATM
1310
420

FIG. 13

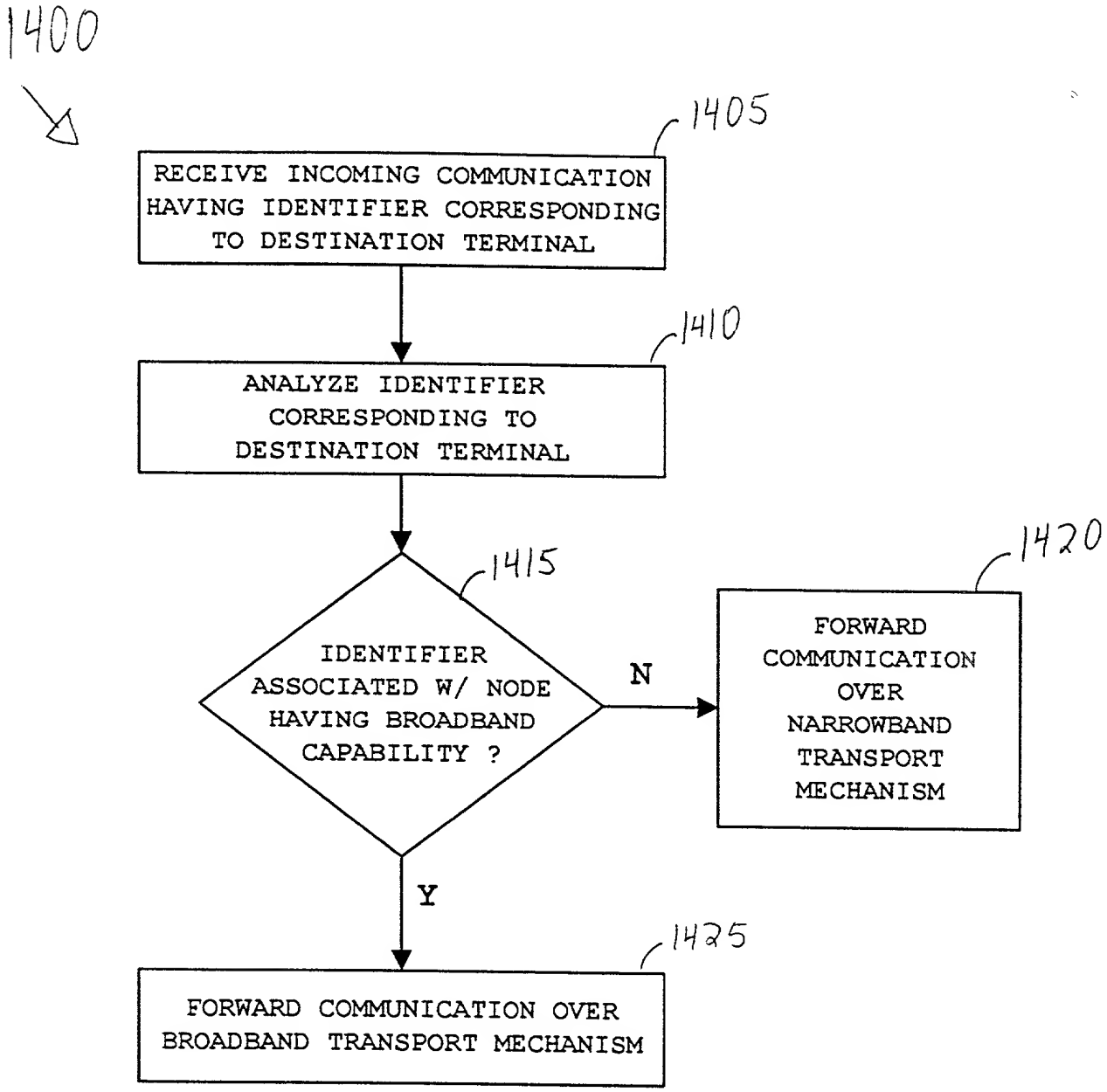

1400
1405
RECEIVE INCOMING COMMUNICATION HAVING IDENTIFIER CORRESPONDING TO DESTINATION TERMINAL
1410
ANALYZE IDENTIFIER CORRESPONDING TO DESTINATION TERMINAL
1415
IDENTIFIER ASSOCIATED W/ NODE HAVING BROADBAND CAPABILITY ?
N
1420
FORWARD COMMUNICATION OVER NARROWBAND TRANSPORT MECHANISM
Y
1425
FORWARD COMMUNICATION OVER BROADBAND TRANSPORT MECHANISM

FIG. 14

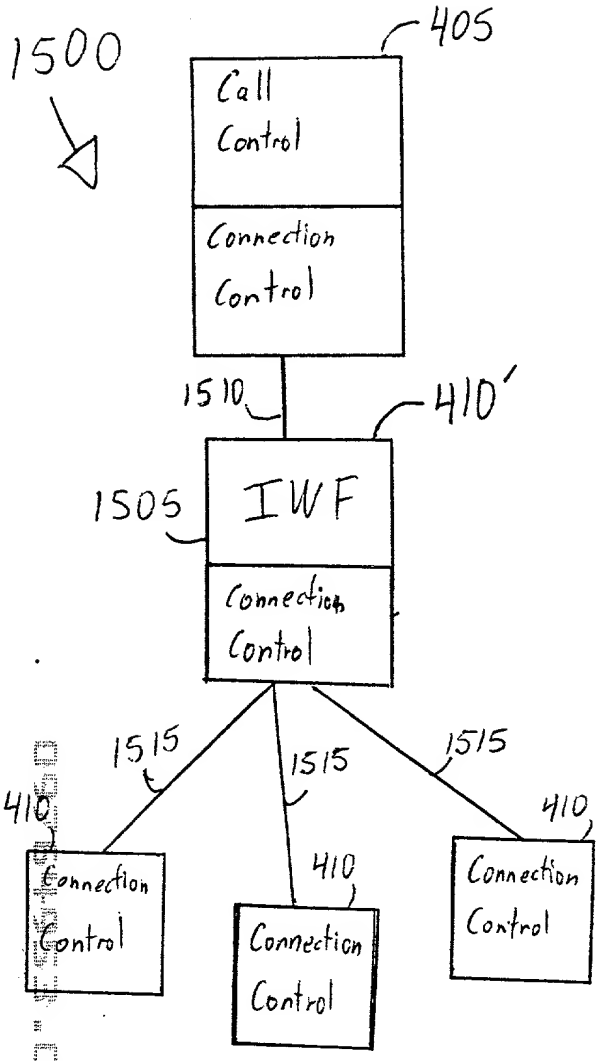


FIG. 15

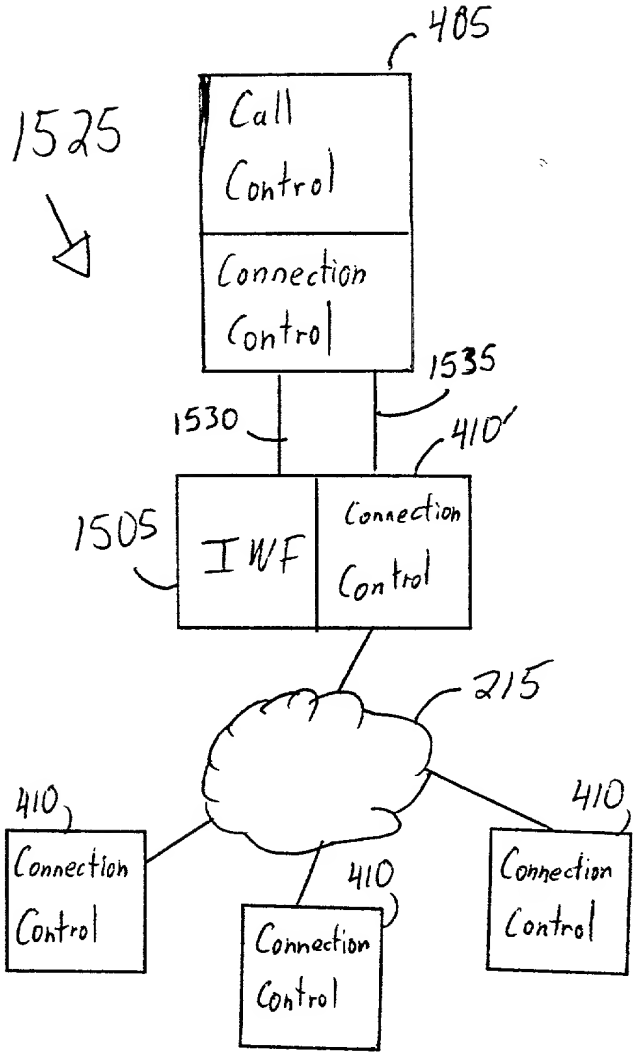


FIG. 15A

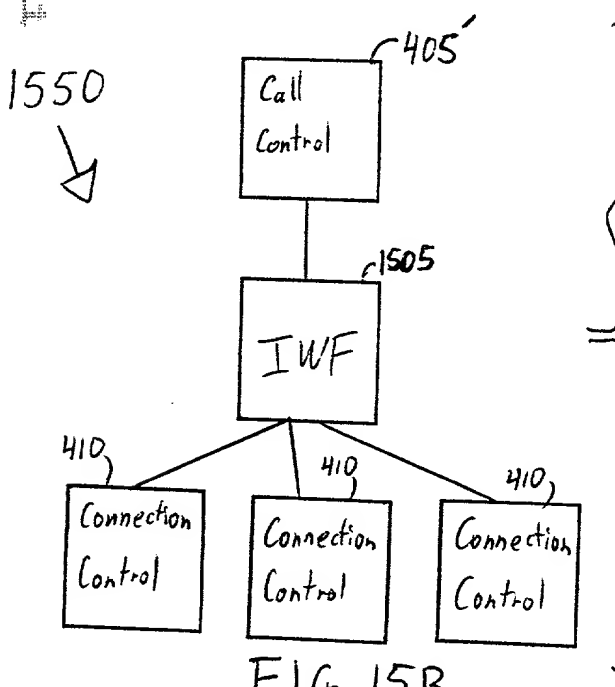


FIG. 15B

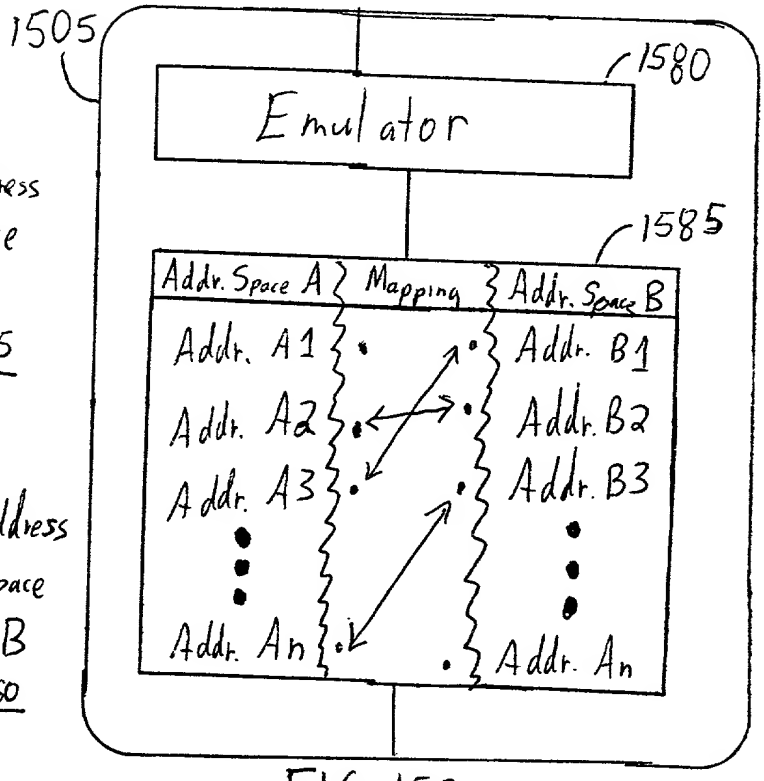


FIG. 15C

DOCKET NO. 95-0168/US

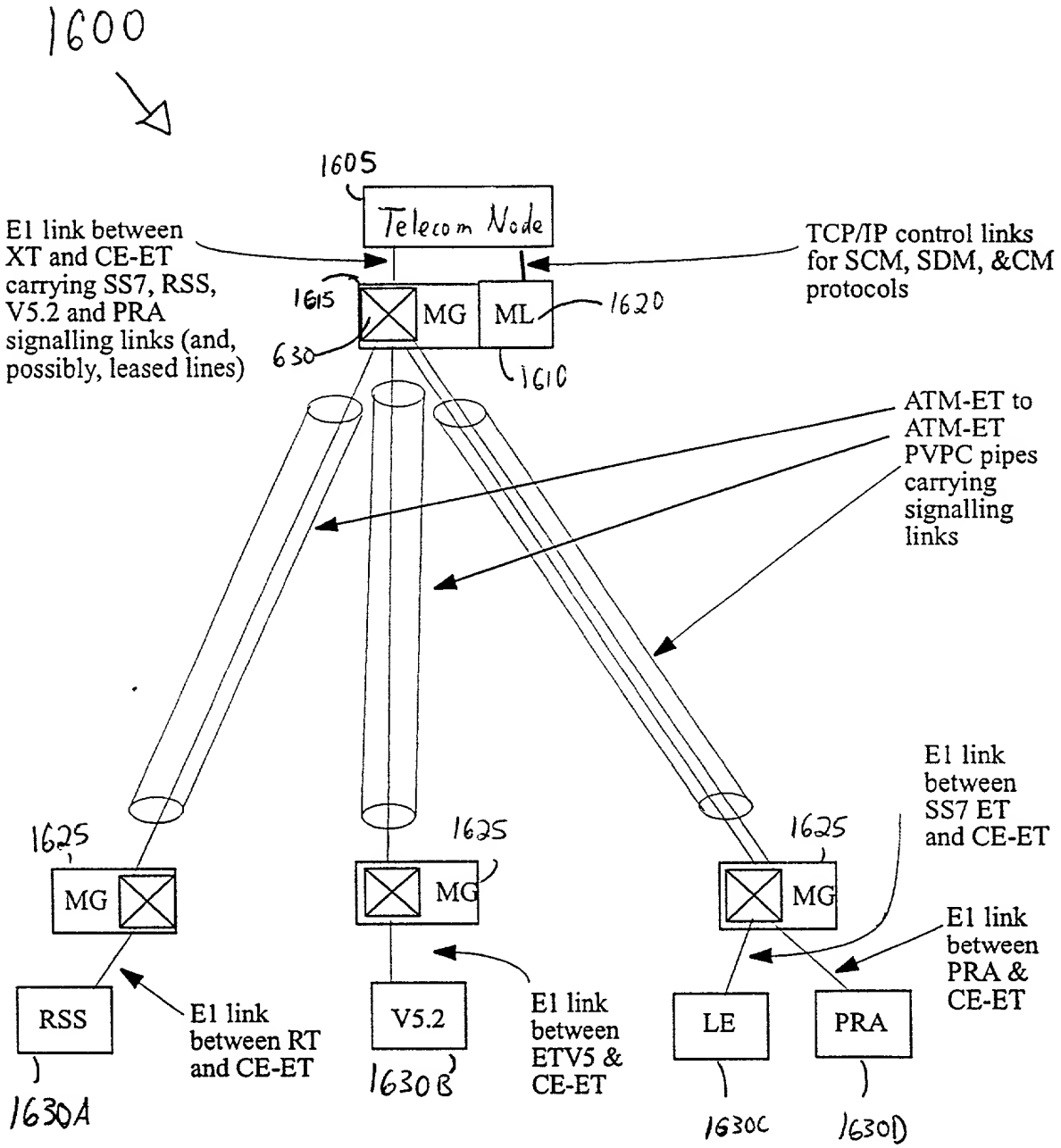


FIG. 16

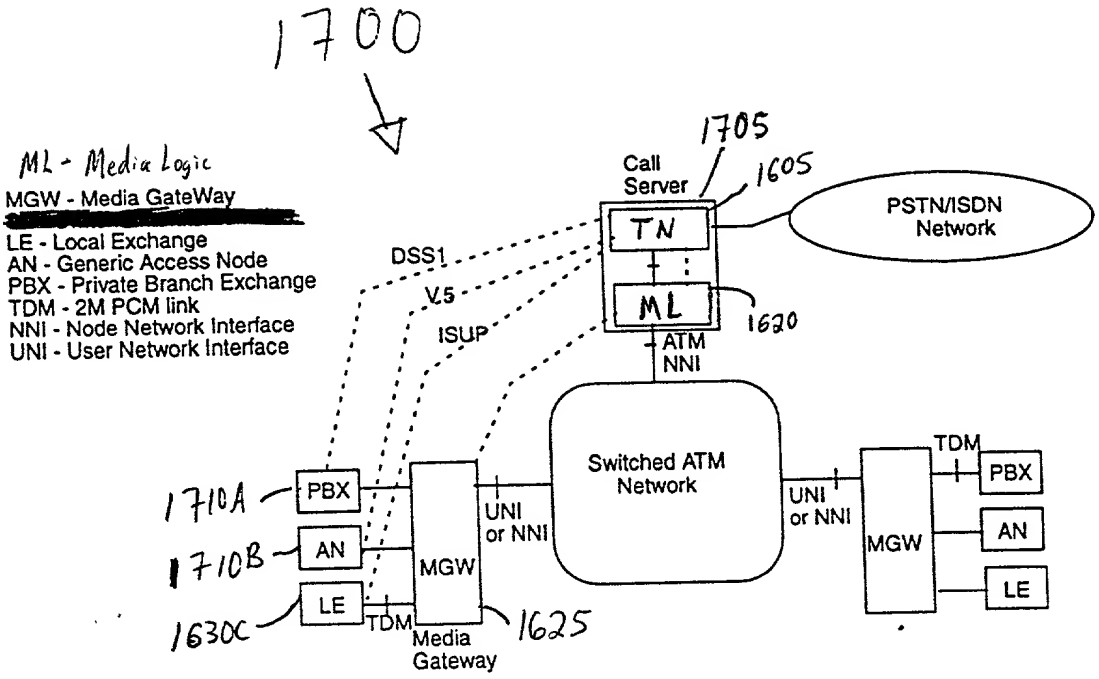


FIG. 17A

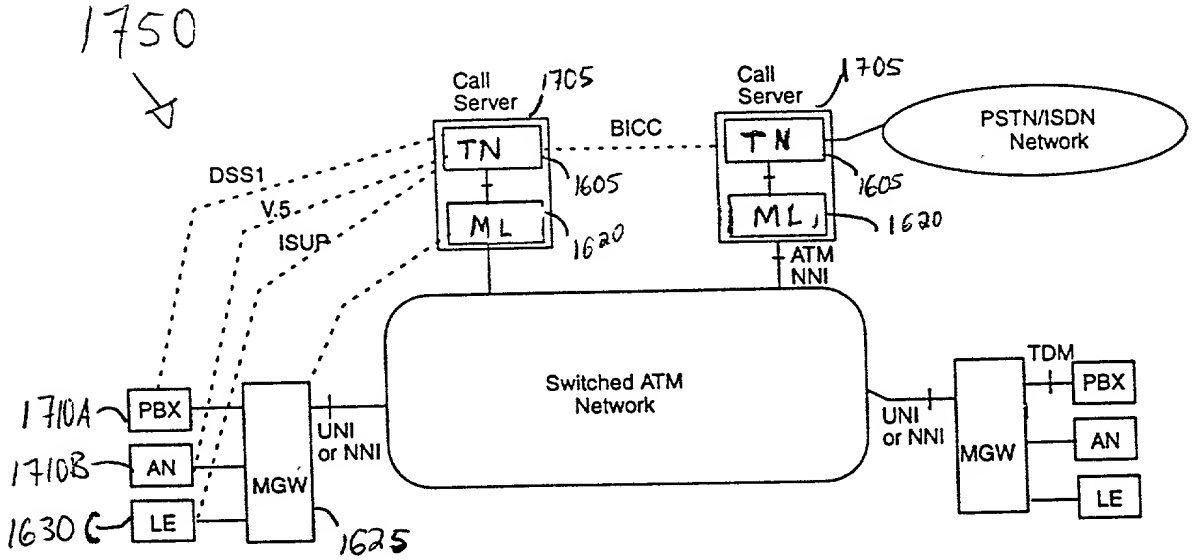


FIG. 17B

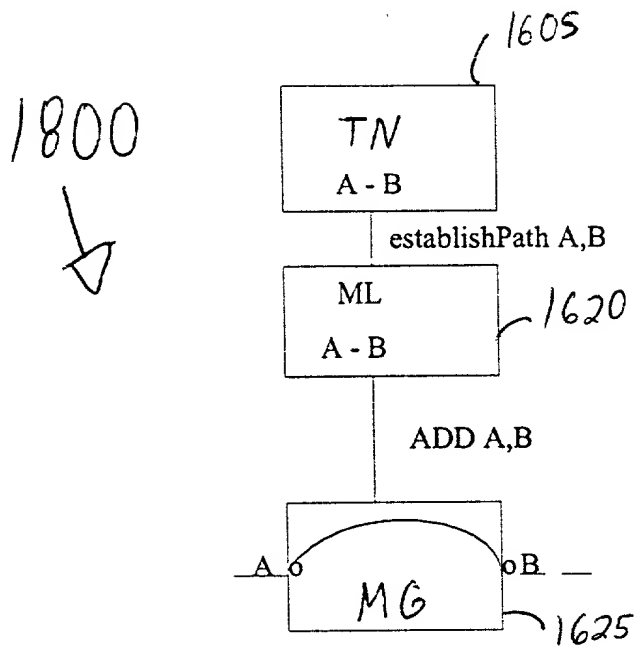


FIG. 18A

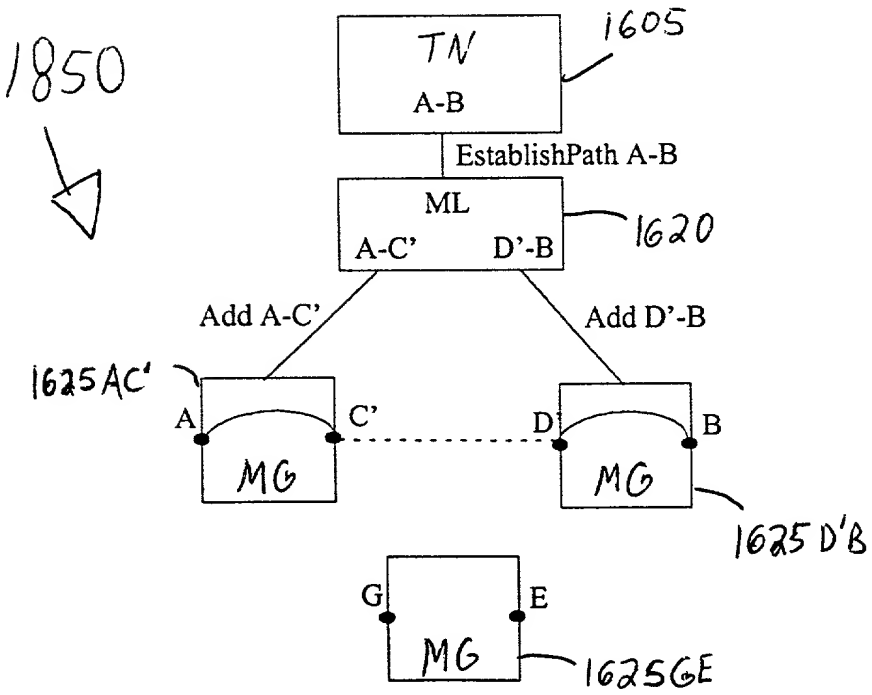
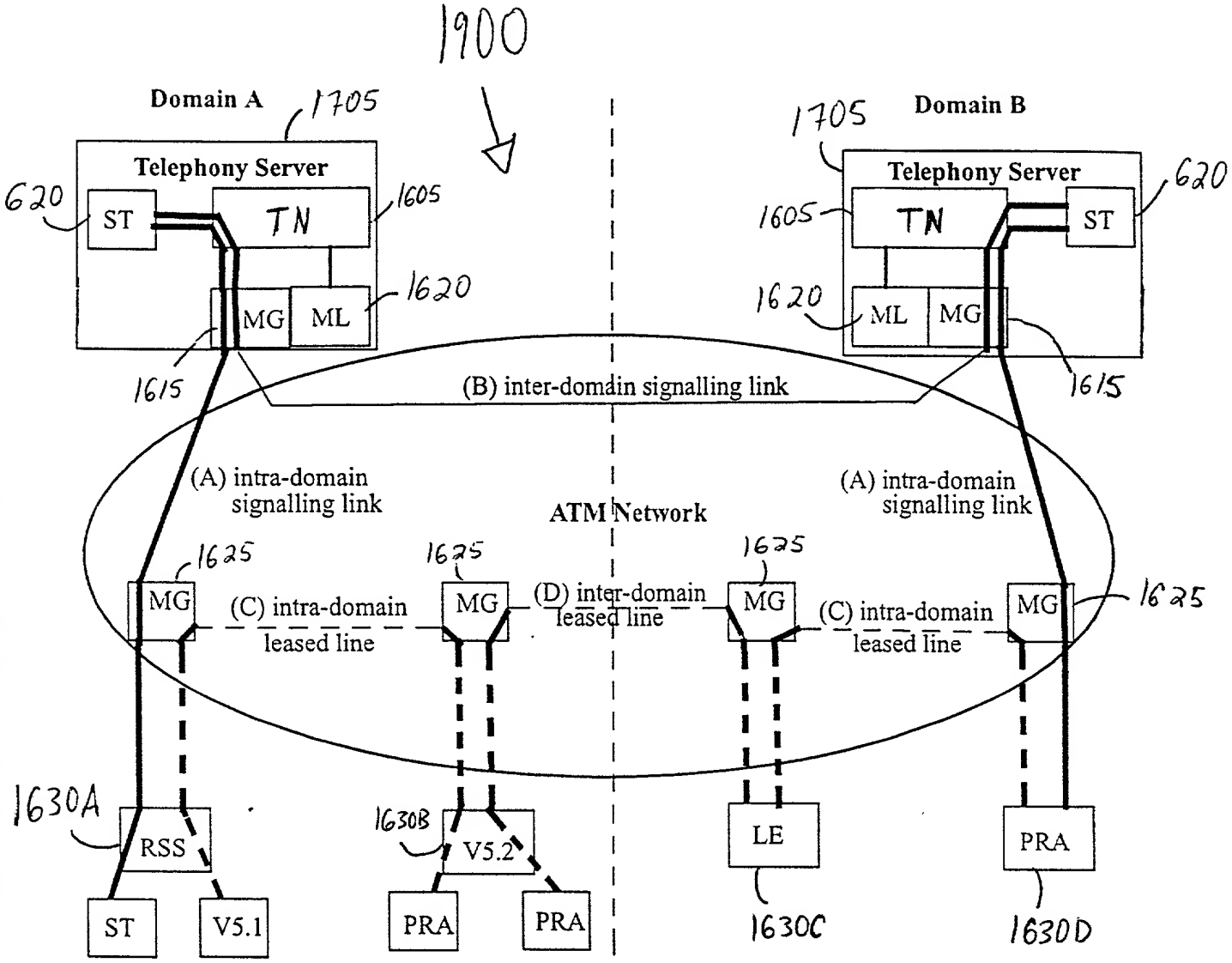


FIG. 18B



The part of a signalling link configured by TN commands (A)
The part of a signalling link configured by ATM Management System (B)

The part of a leased line configured by TN commands
The part of a leased line configured by ATM Management System (C) & (D)

FIG. 19

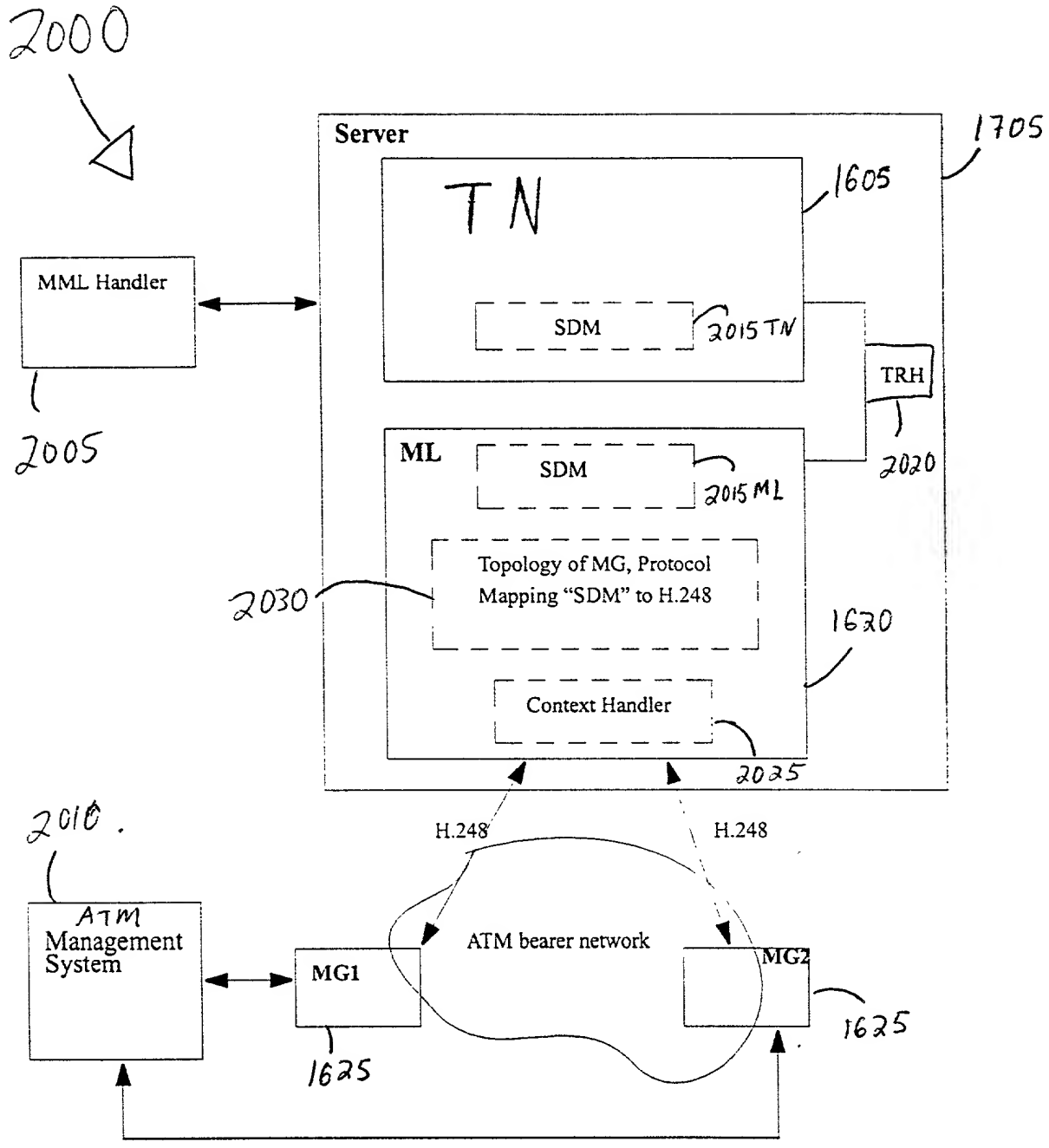

2000
Server
1705
TN
1605
MML Handler
SDM
2015 TN
TRH
2005
2020
ML
SDM
2015 ML
Topology of MG, Protocol Mapping "SDM" to H.248
2030
1620
Context Handler
2025
2010
H.248
H.248
ATM Management System
ATM bearer network
MG1
MG2
1625
1625

FIG. 20A

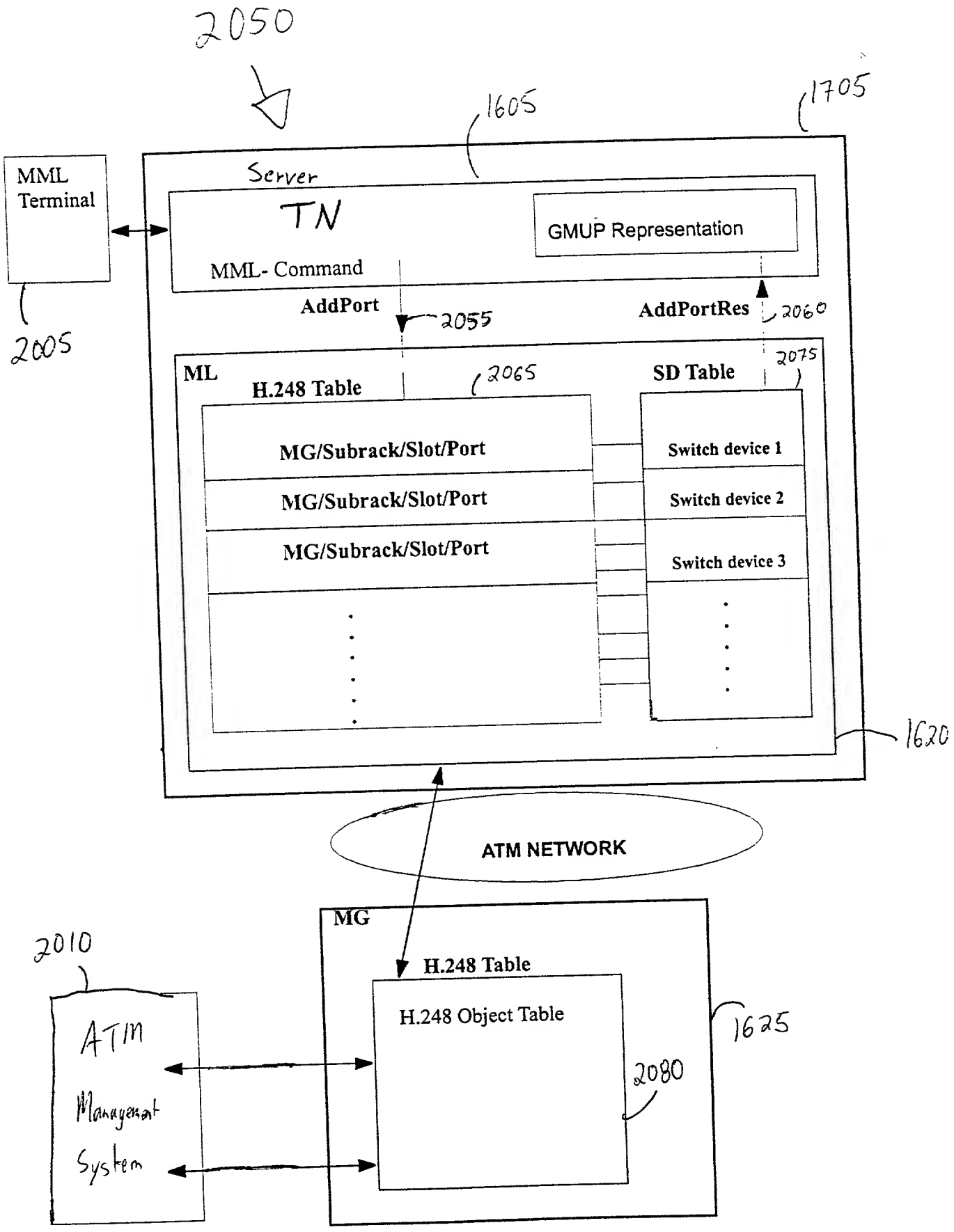

2050
1605
1705
MML Terminal
Server
TN
GMUP Representation
MML- Command
AddPort
2055
AddPortRes
2060
2005
ML
H.248 Table
2065
SD Table
2075
MG/Subrack/Slot/Port
MG/Subrack/Slot/Port
MG/Subrack/Slot/Port
Switch device 1
Switch device 2
Switch device 3
1620
ATM NETWORK
MG
2010
H.248 Table
H.248 Object Table
1625
2080
ATM
Management
System

FIG. 20B